Maurice B. Mittelmark · Shifra Sagy
Monica Eriksson · Georg F. Bauer · Jürgen M. Pelikan
Bengt Lindström · Geir Arild Espnes *Editors*

The Handbook of Salutogenesis

Springer

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of Salutogenesis

Foreword by Ilona Kickbusch

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Foreword

This year marks the 30th anniversary of the Ottawa Charter for Health Promotion—a very appropriate year for this major publication that focuses on the salutogenic orientation and approach. When the Charter was adopted in 1986, it called for a "new public health" which takes its starting point from where health is created in people's everyday lives. Its commitment to a social model of health as a starting point was built on the history of public health's greatest achievements and on concepts from the social sciences and the humanities. A range of theories and thinkers had influenced the work on the Charter, such as Ivan Illich, Michel Foucault, Gregory Bateson, Margaret Mead, the Boston Women's Health Collective and, of course, Aaron Antonovsky. The clarion call of the Charter clearly was to start from health, to think in systems, to empower people and to address the determinants of health.

When we invited Aaron Antonovsky to a workshop in Copenhagen in 1992, he was sceptical that health promotion could reach its full potential without being firmly grounded in a theory of health and society. Behind the rhetoric of health promotion, he identified a strong tendency towards individualistic and disease-based approaches; the risk factors ruled supreme. At that time, we were more optimistic and argued with him—but looking back, he was right. It was a minority of health promotion approaches and programmes that were able to move beyond risk factors and aim for a long-term salutogenic outcome. In many cases, health promotion has been too fluid and too willing to compromise—probably partly due to the lack of the firm theoretical base that Antonovsky had found missing, but undoubtedly also owing to the lack of political and financial support.

The world has changed enormously in the last 30 years. The paradigmatic change we hoped to achieve has been a long time coming, and it brings other new approaches and language; the extensive effort on resilience is one such stream of work. Over time, the concept of health promotion has changed public health, particularly at the community level. The five action areas of the Charter have proved durable and are reinforced through extensive research evidence and practical experience. Many of the health promotion strategies we discuss and implement today address the contextual dimensions of a salutogenic model. They are firmly rooted in the social determinants of health and confront the commercial and the political determinants. We find that more attention is given to social support and to comprehensibility, manageability and meaningfulness—the sense of coherence. Prominent examples include participatory health literacy programmes and self-management programmes, which address the motivational dimensions of the sense of coherence.

However, these approaches are not yet accepted as the gold standard, despite the mounting critique of other models, for example, disease prevention programmes focused on shifting risk factor distributions. This is due, not least, to health promotion being situated in a health system that still runs on the medical model—despite all the knowledge we have on what promotes mental health, what constitutes a successful childhood and what supports healthy ageing.

Many such examples of salutogenic approaches to health promotion have been collected in this book. They show what types of programmes a society committed to the well-being of its citizens could and should support. I hope *The Handbook of Salutogenesis* will be used extensively in the education of a new generation of health and social professionals, to ground them firmly in a salutogenic orientation.

Ilona Kickbusch

Preface

The need for a handbook of salutogenesis has long been felt by researchers in the field. The salutogenesis literature is scattered over many disciplines whose discussion arenas hardly overlap. Across the disciplines, English language literature dominates, but much of great value is published in other languages. Key works by Aaron Antonovsky are out of print and hard to obtain in some parts of the world. Salutogenesis' major stream of research—measurement of the individual's sense of coherence—has tended to overshadow other important developments, such as research on the application of salutogenesis to health promotion.

During the past several years, we and other members of the *Global Working Group on Salutogenesis* of the *International Union for Health Promotion and Education* contributed to seminars and conferences on salutogenesis. This work shaped a lively arena for scholarly exchange, leading to our determination to collaborate on this book. Our idea was to organise it around past, present and future developments in salutogenesis, as the structure of the book shows. We reached out to salutogenesis scholars across the globe and found them eager to participate in the writing. The seven parts of the book include contributions from 87 scholars. Yet we are aware that the book has gaps in subject matter and in its global coverage. We urge readers to call attention to the gaps and to help us fill them in an eventual second edition. We are eager for feedback from researchers and students newly entering the salutogenesis arena: what improvements are needed to facilitate one's entrance into the field? We are especially eager for feedback from salutogenesis stalwarts: what has been left out that must be remedied in a new edition?

The list of persons deserving acknowledgement for helping this book come to fruition is so extensive that we dare not compose the list; we are sure to make many errors of omission. Yet one name stands above all others: Torill Bull of the University of Bergen. Torill is a member of the *Working Group* and was part of the original editor team that conceived and initiated this book project. She was the original Editor of the first part. Illness took hold early in the editorial work, and Torill had to relinquish her Editor role. Her significant contribution to the work is nevertheless evident by her lead authorship and co-authorship of several key chapters. We thank Torill for her seminal contribution to the editorial work!

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List of Abbreviations

GRRs   Generalised resistance resources
SOC   Sense of coherence
SRRs   Specialised resistance resources

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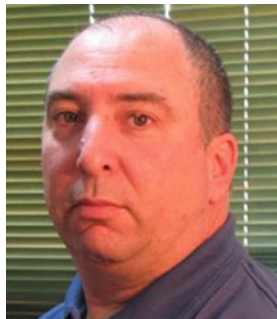
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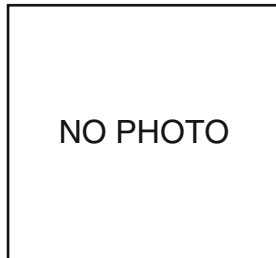
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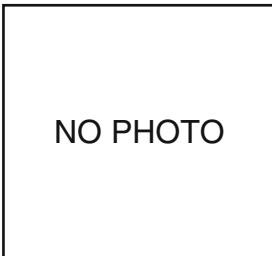
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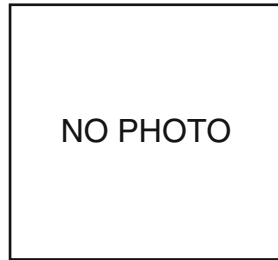
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Overview and Origins of Salutogenesis

Maurice B. Mittelmark

Introduction

"*A handbook is sometimes referred to as a vade mecum (Latin, "go with me"*) *or pocket reference that is intended to be carried at all times. It may also be referred to as an enchiridion.*" Ah, the wonders of Wikipedia, which goes on to say that handbooks are "*compendiums of information in a particular field or about a particular technique*" (http://en.wikipedia.org/wiki/Handbook). This handbook, in either its online open access form or its printed form, is obviously not suited to the pocket. Nor does it aspire to be anything more or less than the *first* compendium of information about the topic "salutogenesis," in English at any rate.

The need for a handbook of salutogenesis has long been felt by researchers in the field. When an eager colleague first enters the salutogenesis research arena, there has been no easy introduction to the topic. The out-of-print "must read" texts by Aaron Antonovsky (1979, 1987) have not been easy to obtain. Antonovsky's brief but vital 1996 paper in *Health Promotion International* challenges health promotion to adopt salutogenesis as a theory for the field (Antonovsky, 1996). What has happened with salutogenesis in the two decades since 1996? Lindström and Eriksson's (2010) *The Hitchhiker's Guide to Salutogenesis: Salutogenic Pathways to Health Promotion* is an excellent introductory guide, but not a compendium of handbook dimensions. The same team of Lindström and Eriksson has produced a fine series of journal articles on various aspects of salutogenesis (Eriksson & Lindström, 2005, 2006, 2007, 2008; Lindström & Eriksson, 2005, 2006, 2010). Of course, their articles are cited repeatedly throughout this Handbook, testimony to their importance (and readers are urged to visit the website of the *Center on Salutogenesis* at University West, Sweden,

for its publication list (http://www.salutogenesis.hv.se/eng/Publications.18.html)). A special treat for the visitor is a free copy of Antonovsky's, 1979 *Health, Stress, and Coping*!

Yet, despite the efforts of Bengt Lindström and Monica Eriksson, and many others, the need for a Handbook remains . . . until now. Bengt and Monica have been central in the development of this volume, as a glance at the table of contents testifies. They were also key players in the birth of the idea for this book, especially Bengt, who is the founding head of the *Global Working Group on Salutogenesis* of the *International Union for Health Promotion and Education (IUHPE)*. The website of the *Working Group* is certainly worth a visit, opening a door to salutogenesis and to the *IUHPE*, the premier global organization for health promotion (http://www.iuhpe.org/). By the time you read this, the leadership of the *Global Working Group* will have passed to the most capable hands of Georg Bauer, an Editor of this book, and a leading authority on salutogenesis. He will welcome your inquiry about the activities of the *Working Group* and your eagerness to become involved!

The paragraph above is not just free advertising for the *IUHPE*: this Handbook actually has its genesis as a project of the *Global Working Group*, a gathering place for the friends that are this book's editors. The *Working Group* has undertaken many projects listed at the *IUHPE* website, and the idea for this book arose at a 2012 project meeting of the *Group*, whose members are (in random order) *Shifra Sagy, Geir Arild Espnes, Georg Bauer, Corey Keyes, Bjarne Bruun Jensen, Erio Ziglio, Monica Eriksson, Bengt Lindström, Maurice Mittelmark, Torill Bull, Antony Morgan, Mima Cattan, Lenneke Vaandrager, and Maria Koelen*.

Having mentioned the *IUHPE*, it would be remiss not to mention the *World Health Organization (WHO)*, and especially Ilona Kickbusch, who directed health promotion at WHO at the Regional Office in Copenhagen and later at the WHO global headquarters in Geneva. Under her leadership, health promotion at the WHO was explicitly salutogenic, with Ilona proclaiming that the salutogenic question—*what*

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are the origins of health—is *the* leading question for health promotion (Kickbusch, 1996).

The editorial team was aware from the first moment that as we are health promotion specialists, the book would have a health promotion flavor, yet we wished to reach to the interdisciplinary world of salutogenesis, not just to health promoters. Significant contributions to salutogenesis are in the literatures of nursing science, psychology, sociology, educational science, medicine, public health, health services research, and more. We have made the effort to write a book that is useful to this broad array of disciplines and specialties, and many chapter authors have affiliations reflecting the diversity.

We also have a passion, as part of our *IUHPE* genotype, to break the English language hegemony of the published literature (Perry & Mittelmark, 2005). We have long been aware that important developments in salutogenesis are published in many languages other than English, and this Handbook gives us the opportunity to illuminate non-English literature in the Part edited by Bengt Lindström. The chapters in Bengt's Part are teasers of a sort, meant to excite interest and give readers entrée to heretofore "exotic" literatures. By having this access to the work of key researchers writing in other languages, readers are better enabled than before to crack the language barrier. However, many languages that might have been included are not, due only to practical limitations. I hope a second edition of the book will expand the offering.

Having just mentioned a particular Part of this book, I nevertheless resist the temptation to provide a section-by-section overview (just see the Table of Contents), but instead cherry-pick two chapters in this Part, to whet the appetite. The Chapter by Avishai Antonovsky and Shifra Sagy, *Aaron Antonovsky: the scholar and the man behind salutogenesis*, is a pearl worth the price the book all on its own (of course, the online edition is free!). Written by Israeli scholars with *very* close knowledge of Antonovsky—his son, and his wonderfully prolific Ph.D. student of many years ago—the chapter paints a portrait of Aaron Antonovsky that takes the subject of salutogenesis to an intimate level. Do you wish you had known Aaron? I never met the man to my great misfortune, but this chapter manages to make me almost think I had.

The chapter *Aaron Antonovsky's development of salutogenesis, 1979–1994,* by Hege Vinje, Eva Langeland and Torill Bull, is from the hands of particularly careful and critical scholars of Antonovsky's work. I know of no other extended synopsis of Antonovsky's work that is as accessible and informative, for the salutogenesis novice and for the expert alike. Not everyone has the time or access to all the books and papers needed to read Antonovsky as deeply and extensively as the authors of this chapter have done. This chapter is a trustworthy road map through the corpus of Antonovsky's life work on salutogenesis.

The meat of this Part—the chapters on the meanings of salutogenesis, on Antonovsky the man and the scholar, and on his body of salutogenesis work—set the stage for the myriad of viewpoints and scholastic interpretations offered in the rest of the book. *Myriad of viewpoints and scholastic interpretations?* Indeed, this is *not* a text, but rather a rich collection of diverse understandings from across generations, disciplines, and settings, and no effort has been made to harmonize the material from chapter to chapter. It has also been important to ensure that each chapter stands alone, as well as helping compose the book as a whole. In this day of e-books and open access, readers often select chapters and download them for reading without the "wrapping" of the entire book from which they are selected. This is why many of the chapter titles somewhat monotonously repeat the term "salutogenesis"—to ensure that literature searches using salutogenesis as a search term will have a reasonable likelihood of unearthing the chapters of this book.

A disclaimer: readers searching for a definitive and authoritative statement on the meaning and status of salutogenesis will not find it in this Handbook. Salutogenesis is still in scholastic infancy, it is forming, and it is developing. How the infant idea will develop as a mature idea is unknown. Here, we sketch the past, describe the present, and speculate on the future.

Closing, I extend my heartfelt appreciation to the editors and the authors, for their enthusiasm and cooperation. Scholarly books, as we all know, are the products of nights, weekends, and holidays. We write books for one another, for our academic friends. As a medieval monk supposedly lamented, *writing is excessive drudgery. It crooks your back, it dims your sight, it twists your stomach and your sides.* It is because we write for one-another that the aches are worth it.

And … thank YOU, Aaron! We wrote this book for you, actually.

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Maurice B. Mittelmark and Georg F. Bauer

Introduction

In the health promotion field, the term salutogenesis is associated with a variety of meanings that Aaron Antonovsky introduced in his 1979 book *Health, Stress and Coping* and expounded in many subsequent works. In its most thoroughly explicated meaning, salutogenesis refers to a *model* described in detail in Antonovsky's 1979 *Health, Stress and Coping*, which posits that life experiences help shape one's sense of coherence—the sense of coherence. A strong sense of coherence helps one mobilise resources to cope with stressors and manage tension successfully. Through this mechanism, the sense of coherence helps determine one's movement on the health Ease/Dis-ease continuum.

In its narrower meaning, salutogenesis is often equated with one part of the *model*, the *sense of coherence*, defined as:

> . . . a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected. (Antonovsky, 1979, p. 123).

In its most general meaning, salutogenesis refers to a scholarly *orientation* focusing attention on the study of the origins of health and assets for health, contra the origins of disease and risk factors.

These meanings are distinct, yet inextricably intertwined, and this may cause confusion: the heart of the salutogenic model is the sense of coherence, a global 'orientation' easily conflated with the salutogenic 'orientation', since the concept of orientation is central to both. A helpful distinction is that orientation in relation to the sense of coherence has relevance for an individual's ability to engage resources to cope with stressors, while orientation in relation to salutogenesis refers to scholars' interest in the study of the origins of health and assets for health rather that the origins of disease and risk factors.

This book is about salutogenesis in all these meanings—the model, the sense of coherence and the orientation. These meanings are taken up in this chapter to set the stage for the chapters that follow. We also briefly discuss salutogenesis in relation to other concepts within and beyond the health arena, with which salutogenesis has important kinship.

The Salutogenic Model

By his own account, the turn in Antonovsky's life from pathogenesis to salutogenesis began to crystallise in the late 1960s. Having worked up to that point as a stress and coping survey researcher with foci on multiple sclerosis, cancer and cardiovascular diseases, he came to realise that his real interest did not have its starting point in any particular disease. The starting point, rather, was *"the illness consequences of psychosocial factors howsoever these consequences might be expressed"* (Antonovsky, 1990, p. 75). This insight led to research and publications on the ideas of 'ease/dis-ease' (breakdown) and generalised resistance resources, but it did not mark the full emergence of salutogenesis in his thinking. At this stage of his career, Antonovsky's focus was still pathogenic (*ibid*, p. 76). Another decade would pass before Antonovsky came to the question '*what makes people healthy?*' and the need to coin the term salutogenesis to convey the mode of thinking implied by the question. The time and space to develop these ideas came while he was on sabbatical at Berkeley in 1977 and 1978.

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The fruition was Antonovsky's full exposition of salutogenesis in *Health, Stress and Coping* (Antonovsky, 1979), the publication of which completed his turn from pathogenesis to salutogenesis. Antonovsky's illustration of the salutogenic model is reproduced in Fig. 2.1, and the salutogenic model is discussed in detail in Chap. 4. Up to the point of the 1979 book, no research based on the salutogenic model had yet been undertaken. The model's core construct, the sense of coherence, had yet to be fully developed, operationalized and measured, and it was to this task that Antonovsky turned his effort. The result, his book *Unraveling the Mystery of Health* (Antonovsky, 1987), focused a great deal of his attention on the sense of coherence and its role as an independent variable in health research (Eriksson and Lindström, 2006; Eriksson and Lindström, 2007). Other aspects of the salutogenic model received less attention, and Antonovsky's own ambitions for further development of the salutogenic model were cut short by his death at age 71, just 7 years following the publication of *Unraveling the Mystery of Health*.

The literature devoted to the salutogenic model is unsurprisingly modest; salutogenesis, born of a sociologist/anthropologist only in 1979, is still is a social science idea in infancy. Mainstream health professions and disciplines have yet to be strongly touched by salutogenesis, even if Antonovsky was professionally situated in a medical school during all the years he developed salutogenesis. The venerated Dorland's Illustrated Medical Dictionary, in print since 1900 and now in its 32nd Edition, does not even have an entry for salutogenesis, much less the salutogenic model (Dorland, 2011).

The salutogenic model has not yet deeply penetrated social science or medicine. That does not mean there is no penetration, and the chapters of this book are evidence that certain health-related arenas are captivated. Yet many scholars who *do* refer to the salutogenic model stray far from its main ideas. Interest in the model's details is watered down by the sweeping generality of the salutogenic orientation, and by the intense interest the sense of coherence awakens. Four aspects of the salutogenic model that require attention are mostly neglected (a) the origins of the sense of coherence, (b) other answers to the salutogenic question than the sense of coherence, (c) health defined as something other than the absence of disease and (d) processes linking the sense of coherence and health.

Starting with *the origins of the sense of coherence*, it develops, according to the salutogenic model, from infancy and the infant's experience of its sociocultural and historic context. Antonovsky wrote extensively about the roles of culture in salutogenesis and the development of the sense of coherence (Benz, et al, 2014). His writings included attention to the role of culture in shaping life situations, in giving rise to stressors and resources, in contributing to life experiences of predictability, in load balance and meaningful roles, in facilitating the development of the sense of coherence and in shaping perceptions of health and well-being (*ibid*). Yet, with almost the sole exception of work by Israelis, culture is not a theme in salutogenesis research (see as examples Braun-Lewensohn and Sagy, 2011; Sagy, 2015). One might protest and point to the plethora of studies in which translations of sense of coherence questionnaires have been developed, but such research is not the study of the cultural forces that Antonovsky called attention to.

Stepping up the ladder of the salutogenic model, cultural and historical context is understood as a cauldron generating psychosocial stressors and resistance resources. It is the life experience of bringing resources to bear on coping with stressors that shapes the sense of coherence. Yet the processes involved are little studied. Which psychosocial resources are predictably generated by which child rearing patterns, which social role complexes and the interaction of these? Is it the case that generalised resistance resources are of prime importance to the development of the sense of coherence as Antonovsky maintained, or do specialised resistance resources (SRRs) also play a vital role (see Chap. 9 for more on this issue)? How does the experience of stress affect the shaping of resistance resources? Unaddressed questions about the origins of the sense of coherence abound.

Moving on to the issue of *other answers to the salutogenic question than the sense of coherence*, Antonovsky invited others to search for them, even if his interest remained firmly with the sense of coherence. The question is this: what factors (presumably besides the sense of coherence) intervene between the stress/resources complex on the one hand and the experience of health on the other hand? A convenient way to partition the question is with the intra-person/extra-person differentiation. The sense of coherence is an intra-person factor; which other intra-person factors may be at play? There are many candidates (hardiness, mastery and so forth), but little effort to compare and contrast their mediating and moderating roles with the sense of coherence *in the same research designs*.

As to extra-person salutary factors, there is at least movement in promising directions. In the work and health literature specifically, and in the settings literature more generally, interest is growing in how physical and social environments can be managed to enhance well-being and performance (see Parts V and VI). Such research is attentive to the sociocultural environment, not as an early force in the shaping of the sense of coherence, but as a mediating factor which may facilitate coping. In the health promotion area, this is referred to as 'supportive environments' and a fundamental precept is that healthy policy should create supportive environments. An example of a salutary extra-person factor is work–family corporate support policy, which is a

Public and Private Health Measures

Potential Endogenic and Exogenic Stressors

A. Psychosocial Stressors
1. accidents and survivors
2. others' experiences
3. horrors of history, direct and vicarious
4. intrapsychic conflicts
5. fear of aggression
6. Immediate world change
7. phase-specific crises
8. other normative crises
9. conflicts in social relations
10. goals-means gap

B. Physical and Biochemical Stressors

Sources of GRRs

Major Psychosocial Generalized Resistance Resources
1. material
2. knowledge, intelligence
3. ego identity
4. coping strategy: rational, flexible, farsighted
5. social supports, ties
6. commitment: continuance, cohesion, control
7. cultural stability
8. magic
9. religion, philosophy, art: a stable set of answers
10. preventive health orientation

Genetic and Constitutional Generalized Resistance Resources

The Socio Cultural and Historical Context

child rearing patterns

social-role complexes

idiosyncratic factors

chance

A (strong) sense of coherence mobilizes GRRS and SRRs to

(1) avoid
(2) define as nonstressors
(3) manage:
  a. holding action
  b. overcome stressors

Sense of Coherence

Life Experiences Characterized by
1. consistency
2. participation in shaping outcome
3. underload-overload balance

Sense of Coherence
a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected

State of Tension

Unsuccessful Tension Management

Successful Tension Management

State of Stress

Pathogens and "Weak Links"

Health Ease/Dis-ease Continuum

Other Ease/Dis-ease Continua

(avoid or neutralize)

Key to Figure1

Arrow A: **Life experiences shape the sense of coherence.**
Arrow B: Stressors affect the generalized resistance resources at one's disposal.
Line C: **By definition, a GRR provides one with sets of meaningful, coherent life experiences.**
Arrow D: **A strong sense of coherence mobilizes the GRRs and SRRs at one's disposal.**
Arrows E: **Childrearing patterns, social role complexes,** idiosyncratic factors, and chance **build up GRRs.**
Arrow F: The sources of GRRs also create stressors.
Arrow G: Traumatic physical and biochemical stressors affect health status directly; health status affects extent of exposure to psychosocial stressors.
Arrow H: Physical and biochemical stressors interact with endogenic pathogens and "weak links" and with stress to affect health status.
Arrow I: Public and private health measures avoid or neutralize stressors.
Line J: A strong sense of coherence, mobilizing GRRS and SRRs, avoids stressors.

Line K: A strong sense of coherence, mobilizing GRRS and SRRs, defines stimuli as nonstressors.
Arrow L: **Ubiquitous stressors create a state of tension.**
Arrow M: **The mobilized GRRs (and SRRs) interact with the state of tension and manage a holding action and the overcoming of stressors.**
Arrow N: **Successful tension management strengthens the sense of coherence.**
Arrow O: **Successful tension management maintains one's place on the health ease/dis-ease continuum.**
Arrow P: Interaction between the state of stress and pathogens and "weak links" negatively affects health status.
Arrow Q: Stress is a general precursor that interacts with the existing potential endogenic and exogenic pathogens and "weak links."
Arrow R: Good health status facilitates the acquisition of other GRRs.

Note: The statements in bold type represent the core of the salutogenic model.

Fig. 2.1 The salutogenic model of health

SRR related positively to job satisfaction, job commitment and intentions to stay on the job (Butts, Casper, and Yang, 2013). Most interestingly, it may be that the perceived availability of support under such policy, rather than actual *use* of supports, is the critical factor in good job-related outcomes (*ibid*).

Moving to *health defined as something other than the absence of disease*, the definitions of health evident in the salutogenesis literature are not as specified in the salutogenic model (Mittelmark and Bull, 2013). This is not a point of critique, since there are good reasons why this is so (*ibid*). Rather, it is a comment on the casual treatment the salutogenic model receives. Research articles reporting on the relationship of the sense of coherence to a wide range of disease endpoints fail to note that this is a drastic departure from the specifications of the salutogenic model; the discrepancy is not just ignored, it is unnoticed.

Finally, moving to the issue of *processes linking the sense of coherence and health*, the salutogenic model posits that the sense of coherence helps a person mobilise generalised resistance resources and specific resistance resources in the face of psychosocial and physical stressors; this may end with stressors (1) avoided, (2) defined as non-stressors, (3) managed/overcome, (4) leading to tension that is subsequently managed with success (and enhancing the sense of coherence) or (5) leading to unsuccessfully managed tension. These outcomes have impact on one's movement on the Ease/Dis-ease continuum, but what mechanisms link the sense of coherence and movement on the continuum? The sense of coherence is postulated as an orientation (in the sense of attitude, predisposition or proclivity), not a cognitive and/or emotional mechanism that converts information about stressors and resources into coping responses. What *else* happens in the brain that lies between the sense of coherence and coping responses? This is a little studied question, surprising since the brain plays a huge role in the salutogenic model. Chapters 6 and 29 address this question (a psychological process called 'self-tuning' is described), but the search for factors that intervene the sense of coherence and stress/resources/coping experience remains a rarity.

The discussion above suggests neglected development of the salutogenic model. Why is the model relatively neglected? One obvious answer is its newness; another is that Antonovsky himself did not pursue empirical testing of the whole, very complex model. Instead, he focused on the sense of coherence, which he considered as the key concept, and even as the ultimate dependent variable in salutogenic thinking. Thus, it is not surprising that many other scholars have followed his inspiring lead and focused on the study of the sense of coherence part of the model.

Salutogenesis as the Sense of Coherence

Salutogenesis was situated by Antonovsky as a question: what are the origins of health? His answer was the sense of coherence. The question and this answer comprised the heart of his salutogenic model as just discussed. Antonovsky invited other answers to the salutogenic question, while remaining convinced that his own answer was fundamental. The way Antonovsky posed and answered the question of salutogenesis was challenging. While 'origins'—he used the plural form—signals the possibility of multiple health-generating determinants and processes, his singular answer—the sense of coherence—suggested a channelling of all salutogenic processes through a particular mental orientation. This singular answer provides an appealing reduction of complexity compared to the concept of pathogenesis, with its legion of risk factors:

> "A salutogenic orientation, I wrote, provides the basis, the springboard, for the development of a theory which can be exploited by the field of health promotion [...] which brings us to the sense of coherence" (Antonovsky, 1996).

He considered the sense of coherence as the key concept of the salutogenic model. We say no more about the content of the sense of coherence idea here, referring the reader instead to Part III of this book, which is devoted to the topic. Rather, we focus on the question, why has this single-minded answer—the sense of coherence—been overriding as the answer to the salutogenic question? Why is the sense of coherence actually equivalent in meaning to salutogenesis, for so many scholars?

Firstly, Antonovsky strongly signalled that of all the aspects of the salutogenic model, the sense of coherence deserved singular attention. In his very influential 1996 paper in Global Health Promotion, Antonovsky proposed a research agenda consisting *solely* of sense of coherence questions:

- "Does the sense of coherence act primarily as a buffer, being particularly important for those at higher stressor levels, or is it of importance straight down the line?
- Is there a linear relationship between sense of coherence and health, or is having a particularly weak (or a particularly strong) sense of coherence what matters?
- Does the significance of the sense of coherence vary with age, e.g., by the time the ranks have been thinned, and those who survive generally have a relatively strong sense of coherence, does it still matter much?
- Is there a stronger and more direct relationship between the sense of coherence and emotional wellbeing than with physical wellbeing?

- What is the relationship between the movement of the person toward wellbeing and the strength of his/her collective sense of coherence?
- Does the sense of coherence work through attitude and behavior change, the emotional level, or perhaps, as suggested by the fascinating new field of PNI (psychoneuroimmunology), from central nervous system to natural killer cells?" (Antonovsky, 1996, pp. 16, 17).

Importantly, some of these questions focus on neglected issues as discussed in the paragraphs above on the salutogenic model. Yet Antonovsky's focus on the sense of coherence was crystal clear, and that undoubtedly influences the choices of subsequent generations of salutogenesis researchers.

Besides the importance of Antonovsky's lead, the sense of coherence has the charm of relative simplicity: it suggests that all salutogenic processes are channelled through a measurable global life orientation. Thus, this single, focused concept greatly reduces complexity. Further, the sense of coherence concept has high face validity for both researchers and populations it is applied to, as it makes immediate sense that perceiving life as comprehensible, manageable and meaningful is conducive to health. Also, it is supposedly more complete and generalisable, and not culture-bound, in contrast to concepts such as internal locus of control and mastery. The combination of cognitive, behavioural and motivational components positions the sense of coherence uniquely. . . and they are all measureable.

This last point, that the sense of coherence is appealingly measurable, may be the most significant reason for its centre stage position in the salutogenesis literature. In the prestigious journal *Social Science and Medicine*, Antonovsky (1993) published a paper titled *The Structure and Properties of the Sense of Coherence Scale*, cited as of this writing by over 2500 publications, a momentous achievement. Within just a few years, Antonovsky's sense of coherence scale had been used in "at least 33 languages in 32 countries with at least 15 different versions of the questionnaire" (Eriksson and Lindström, 2005). The stream of sense of coherence measurement papers has continued unabated (Rajesh et al., 2015).

Thus, it is understandable that for many, salutogenesis is synonymous with the sense of coherence: it is Antonovsky's answer to the salutogenic question, it was his sole priority for further research, and sense of coherence measurement has scientific importance. . . and panache.

The Salutogenic Orientation

In his last paper, published posthumously, Antonovsky (1996) wrote:

> "I was led to propose the conceptual neologism of *salutogenesis*—the origins of health—(Antonovsky, 1979). I

urged that this orientation would prove to be more powerful a guide for research and practice than the pathogenic orientation."

Was Antonovsky predicting a paradigm shift? It is important to note that the 1996 paper cited above was directed at the field of health promotion, which Antonovsky felt had too whole-heartedly accepted pathogenesis thinking and disease prevention via risk factor reduction. Expressing his hopes for 'proponents of health promotion', Antonovsky wrote that the salutogenic orientation might help them "carve out an autonomous existence—though one undoubtedly in partnership with curative and preventive medicine" (Antonovsky, 1996). Not so much a complete paradigm shift from pathogenesis *to* salutogenesis, Antonovsky wished to foment a shift to salutogenesis as a viable theory basis and as an essential supplement to pathogenesis in the health and social sciences (Mittelmark and Bull, 2013). Yet, in introducing the salutogenic orientation, Antonovsky referred explicitly to Thomas Kuhn's (1962, 2012) idea of paradigmatic axioms which need to change for a paradigm shift to emerge. His thoughts were on

> "the axiom . . . which is at the basis of the pathogenic orientation which suffuses all western medical thinking: the human organism is a splendid system, a marvel of mechanical organization, which is now and then attacked by a pathogen and damaged, acutely or chronically or fatally" (Antonovsky, 1996).

Challenging this axiom, Antonovsky summarizes the essence of the salutogenic orientation in contrast to the pathogenic orientation (Antonovsky, 1996):

- In contrast to the dichotomous classification of pathogenesis into healthy or not, salutogenesis conceptualizes a healthy/dis-ease continuum
- In contrast to pathogenesis' risk factors, salutogenesis illuminates salutary factors that actively promote health
- In contrast to focusing on a "particular pathology, disability or characteristic" of a person, salutogenesis might work with a community of persons and "must relate to all aspects of the person"

We return to our earlier question, slightly rephrased: was Antonovsky calling for a paradigm shift *from* pathogenesis *to* salutogenesis? Certainly not in the sense of salutogenesis as the usurper of pathogenesis; he remarked repeatedly that pathogenesis would remain dominate in the 'health' arena. But he did hope that salutogenesis would achieve an ascendant position as *the* theory of health promotion. This is not yet achieved, but salutogenesis is on the rise. The *Health Development Model* (Bauer, et al., 2006, see Fig. 6.1 in Chap. 6) is a prominent framework for the development of health promotion indicators, and it explicitly incorporates aspects of both pathogenesis and salutogenesis. If the concept of paradigm shift is not too grand to apply, we could say that the shift is to a paradigm that incorporates pathogenesis

and salutogenesis. This shift, even if modest so far, is perhaps the most promising contribution of the salutogenic orientation to the health and social sciences. Compared to other concepts relevant to a search for the origins of health, such as assets, resources, coping and resilience, salutogenesis is in a sense a more complete concept, offering a new outlook on health outcomes, health determinants and health development processes. For many health promotion researchers, using the term 'salutogenesis' communicates at a minimum that one pursues an alternative approach to pathogenesis.

This inclusive sense of salutogenesis is captured by Lindström and Eriksson's umbrella image, which effectively communicates that many health resources and assets concepts (e.g. social support, the sense of coherence, self-efficacy, hardiness and action competency) have kinship under the salutogenesis umbrella (Eriksson and Lindström, 2010). The umbrella also covers diverse positive health conceptions such as quality of life, flourishing and well-being. Seen in this light, salutogenesis might be defined simply as processes wherein people's and communities' resources are engaged to further individual and collective health and well-being. Of course, this umbrella concept is a particular view of the salutogenesis aficionado; a self-efficacy researcher might be inclined to place salutogenesis under the umbrella in the company of all the other positive health concepts.

Salutogenesis in Context: Comparable Concepts and Developments

The salutogenic model originated as a stress and coping model (Antonovsky, 1979). Antonovsky referred to Selye's (1956) and Lazarus and Cohen's (1977) work as particularly inspirational. As does the salutogenic model, Lazarus and Cohen's transactional model of stress assumes an interaction between external stressors and a person who evaluates stressors based on the resources available to cope. In the domain of working life, the well-established job Demand-Control Model (Karasek, 1979; Bakker, van Veldhoven, & Xanthopoulou 2015), the Effort Reward Imbalance Model (Siegrist, Siegrist, and Weber 1986; Van Vegchel et al., 2005) and the more generic Job Demands-Resources Model (Bakker & Demerouti, 2007) share with the salutogenic model the basic idea of a balance between stressors and resources—and that they have been mainly empirically tested in relation to disease outcomes. In a recent development, an organisational health model has emerged from the explicit linking of elements of the Job Demand-Resource Model (Bakker and Demerouti, 2007) with salutogenesis (Bauer and Jenny, 2012, Brauchli, Jenny, Füllemann, & Bauer 2015).

Salutogenesis as an orientation is an idea in close concert with a broad academic movement towards a positive perspective on human life. There are traces of salutogenesis in philosophy at least since Aristotle reflected about the hedonic and eudaimonic qualities of (positive) health (Ryan & Deci, 2001). Three decades before *Health, Stress and Coping*, the Constitution of the *World Health Organization* exclaimed that "health is more than the absence of disease". Illich (1976) critiqued the medicalisation of life. Social epidemiology has a long tradition of considering broad social determinants of health beyond the proximal disease risk factors (Berkman, Kawachi, & Glymour 2014). More recent parallel developments include research on positive organisational behaviour in organisational psychology (Nelson & Cooper), on happiness in management research (Judge & Kammeyer-Mueller 2011), on place as a resource in social ecology (Von Lindern, Lymeus & Hartig, this volume), on promoting strengths in educational sciences (Jensen, Dür & Buijs this volume) and on pre-conditions for substantially rewarding, satisfying and fulfilling lives in sociology (Stebbins, 2009; Thin, 2014). Chapter 11 in this book on positive psychology describes vibrant developments in the emerging positive health paradigm. In the field of health promotion, the positive paradigm may be seen in recent literature of two kinds: that which describes protective factors against untoward outcomes (e.g. Boehm and Kubzansky, 2012) and that which describes factors that promote well-being (Eriksson and Lindström, 2014).

Conclusions

This chapter—and this Handbook—introduce a broad swath of developments that excite the present generation of salutogenesis scholars. Some of these developments are clearly relevant to the salutogenic model, others are firmly focused on the sense of coherence, and yet others are more identifiable with salutogenesis as an orientation. The book also takes up parallel developments in the areas of positive psychology, occupational and organizational health sciences, social ecology and educational sciences which may make little explicit reference to salutogenesis, and yet are in evident close kinship with salutogenesis. It is one of the main aims of this book to invite an inclusive, bridging dialogue, meant to nourish salutogenesis... in all its meanings. The book also aims to introduce salutogenesis researchers to scientific kinfolk who contemplate matters highly relevant to salutogenesis, even if they do so in literatures not searchable with the key word 'salutogenesis'.

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Aaron Antonovsky, the Scholar and the Man Behind Salutogenesis

Avishai Antonovsky and Shifra Sagy

"Your candle burned out long before your legend ever did"
(Bernie Taupin, Candle in the wind)

Introduction

In January 1945, while serving in the American army and stationed in New Guinea, Aaron Antonovsky (hereafter Aaron) wrote a long letter to his younger brother, Carl, who was then 13, ongoing adolescence. Aaron, at the age of 21, expressed two things that would later on be a significant part of his academic character. He wrote: "You don't know the meaning of 'iconoclast'—but you know the idea, because Avraham Aveenu [Abraham, one of the fathers in the Bible] was one. What did he do? He looked all about him, questioned everything, rebelled against everything . . . and he mercilessly destroyed everything that was false. He broke not only the idols themselves, but the belief he himself had once had in them. He had not yet discovered the great principle of his life, but he had cleared the way for it." Years later, perhaps less dramatically, pathogenesis was "removed" from the agenda to make way for salutogenesis. Toward the end of the letter, Aaron wrote: ". . . throughout our lives, we must never stop asking questions; but it is most important now." A half a century later, in a tribute to Aaron, Ilona Kickbusch wrote " . . . there is nothing more practical and efficient than asking the right question . . . . Aaron Antonovsky consistently had the courage to ask the right question: how is health created?" (1996, p. 5).

Rebelling against the mainstream and searching for the right questions seem to be the two most salient characteristics that bridge between Aaron the scholar and Aaron the man.

In this chapter, we wish to share some insights we have regarding the development of the salutogenic idea, by drawing lines connecting it to the *person* Aaron was. Having been very close to Aaron for several decades, we feel that a certain degree of familiarity with his personal background would contribute to the understanding of the development of the salutogenic theory. Therefore, we wish to shed some light on Aaron's personal experiences, ideological beliefs, and professional development throughout his life, until the crystallization of the salutogenic idea. Being close to him, and knowing what he would prefer, we shall refer to him by first name throughout this chapter (unless quoting others).

But how does one write about Aaron the scholar, without diving too deeply into the world of salutogenesis, which will be discussed thoroughly throughout this book? How does one write about Aaron the man, without becoming too biographically boring? We shall try to accomplish this task by avoiding strict academic writing; instead, following a brief history of his life, we will highlight a few qualities which, we believe, are characteristic of Aaron's scholarly work as well as of his personal life. In doing so, we will quote friends and colleagues of Aaron's who have agreed to contribute their illustrative memories to this chapter.[1] These will be embellished with some unknown, perhaps humorous, anecdotes.

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[1] The names of these people are marked in **bold** typeface.

Rebellion and the Importance of Questions

Aaron was born in the United States in 1923, 5 years after the end of World War I and 6 years before the outburst of the Great Depression. His parents and older sister had fled from Russia a few years earlier, arrived in Canada, traveled to England and back to Canada before they finally settled down in Brooklyn, New York. As a child, Aaron's social environment consisted of immigrant families, mostly lower class Jews and Italians. His father owned a small laundry shop where his wife and two children spent many hours helping out. Somehow, they managed to survive the difficulties of adapting to a new culture in times of a severe economic depression. Later, in the 1930s, Aaron's parents—for whom education was extremely important (having little or no formal education themselves)—sent him to a prestigious high school, and then to college, until he was drafted into the American army during World War II and sent to the Pacific.

As an adolescent, Aaron was deeply involved in the HaShomer HaTza'ir Jewish youth movement, where he first absorbed a socialistic ideology. As his younger brother **Carl** told us, "Belonging to a Jewish organization was obvious." **Selma Rieff,** a close friend, who met Aaron as a child in the youth movement, remembers those days, of endless ideological discussions, as most important in shaping Aaron's orientation to life.

This was perhaps the first instance of Aaron the rebel, because unlike most movement members, he was against Communism. At the age of 26, after the establishment of the State of Israel in 1948, Aaron came to Israel and was a founding member of a kibbutz,[2] where his socialist ideology came into practice.

Upon returning to the United States in the early 1950s, Aaron completed his doctorate in sociology at Yale University. By that time he had been involved in research and writing about social class, discrimination, inequality, immigration, and ethnic minorities. During this period, we believe, the seeds were planted for what would a quarter of a century later evolve into being the salutogenic model. For Aaron, the two decades between 1955 and 1975 were years of transition: personally, he had married, spent a year in Iran and then came back to Israel (this time to the city of Jerusalem), had a child born and ended up in the city of Beer Sheva, helping to set up a new medical school. Professionally, Aaron moved back and forth between the

sociological studies on immigration, culture, and social class, and the focus on sociology of health. During this period, he was coauthor or coeditor of four books which are possibly not familiar today to health promotion scholars, but we see them as tied to the salutogenic revolution: *Poverty and health* (1969), *Hopes and fears of Israelis* (1972), *From the golden to the promised land* (1979), and *A time to reap* (1981).

People suffering discrimination, or poverty, or the struggle to adjust to a new country as immigrants (or founding a kibbutz on bare land in the summer heat or the winter cold), are quite obviously prone to physical or mental sickness. Still, many such people maintain good health and well-being. The question that began to arise in Aaron's mind was not why some of these people feel miserable, but rather how some of them manage quite well. This question became more salient following a study of women Holocaust survivors, many of whom were found to be well adapted, despite the excruciating experience in concentration camps and poor life conditions after immigration to Israel.

The answer, which Aaron has termed the sense of coherence, was to follow. But it was the salutogenic *question*—not why does one become sick, but how does one move toward the health pole on the ease–dis-ease continuum—that constituted the major philosophical change in thought, from the traditional pathogenic orientation to the salutogenic view of the mystery of health.

The emphasis on asking the right *question*, as a key to relevant answers, is, we believe, crucial to the advancement not only of the study of health and well-being, but also of all scientific endeavors. Aaron's mantra "*Ask the right question!*" has been following one of us (AA), first as a teenager, later as a young student, and to these days as a lecturer in the social sciences; it is useful in the academia, but no less in solving "simple" daily problems, be it why the TV remote control does not work or where to go on the next vacation.

Asking questions, in itself, is a kind of rebellion. It signifies resistance to blind acceptance. But Aaron wanted more. Aaron put into deeds the words attributed to Mark Twain: "Whenever you find yourself on the side of the majority, it's time to pause and reflect."

From a personal-developmental perspective, we see the roots of Aaron's salutogenic theory in his concrete childhood and adolescence experiences, from which he derived the tendency to question the world and rebel against what he believed was wrong. In a recent conversation, his younger brother **Carl** described him as "very idealistic, striving for a better world, intellectually curious, full of compassion, and having a strong feeling of how things should be done."

Aaron's parents, optimistically tackling the daily hurdles in the time of the Great Depression, served for him as living examples of viewing life as comprehensible, manageable,

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[2] A kibbutz (in Hebrew: collection; plural: kibbutzim) is an Israeli unique kind of collective settlement. A person living in a kibbutz is a kibbutznik. There are a few hundred kibbutzim, the first established in 1909. Traditionally based on agriculture, they began as utopian socialist communities, carrying the slogan "From each according to his ability, to each according to his need". Today, many kibbutzim have been privatized and industry has replaced much of the agriculture.

and meaningful. It is therefore clear why he dedicated his book *Unraveling the mystery of health* (1987b) "To my parents … from whom I learned about the sense of coherence."

Warmth and Informality vs. Strictness and Academic Demands

Several colleagues and friends have pointed out two characteristics of Aaron that we know very well, and—we believe—have enabled him not only to make his way to the hearts of other people, but also to be a good researcher and health educator: informality on the one hand, and uncompromising academic demands on the other.

In a Western professional world where it is a custom to go to work with shoes, a jacket and a tie, Aaron was known for his appearance with sandals, a short sleeved shirt and of course no tie. This habit may have its origin in the kibbutz life, and it was probably very convenient to wear such an outfit in Beer Sheva (where Aaron lived for 18 years while at Ben Gurion University).[3] We assume that on very formal occasions abroad (that is, outside Israel) he would wear a tie, but in our memories (at least AA), the only time Aaron wore a suit and a bow-tie was for the ceremony in 1993, in which he received an honorary doctorate at the Nordic School of Public Health in Göteborg, Sweden.

An illustration of Aaron's openness, talkativeness and informality is found in an article by Suzanne C. Oullette (Kobasa). In 1998, a special issue of *Megamot* ("Trends"—the leading Israeli behavioral sciences journal) was devoted to "Salutogenesis and wellness: Origins of health and well-being." Ouellette, who developed the concept of *hardiness* at about the same time that the idea of the *sense of coherence* was born (e.g., Kobasa, 1979), wrote an article for the special issue, titled "Remembering Aaron Antonovsky: A conversation cherished and one missed." Here are a few excerpts of that article, back-translated from Hebrew (unfortunately, we were unable to find the original English manuscript, which was translated into Hebrew for the special issue):

> I had only one opportunity to meet Aaron Antonovsky and enjoy a lively, open, and informal conversation about research questions that had interested us. It took place at his parents' apartment in Brooklyn, New York. It was in summer 1982, only a few years after each one of us published, without being introduced to each other, what we had thought were new and unique calls for research about the things that keep people healthy under stress.

In the phone conversation we had before that meeting, Aaron explained that he was visiting his parents and told me a bit about them and his relationship with them. His parents lived during the time of the Holocaust and were now in their old age. His visit was to make sure they are alright. It was also an opportunity for him to gain strength from two people who had been, and still were, key figures for him; an example of how people live, in Aaron's words, a *salutogenic* life.

At the meeting itself I got the impression that Aaron's parents were full of vitality despite their age (his father was over 90 and his mother was approaching 90). They did what was needed to make sure their son's stay in New York would be comfortable and that our meeting would be pleasant for me as well. Aaron was dressed informally: an army-like khaki shirt. I have seen this kind of shirt, but usually in films in a desert area, not in the streets of Brooklyn or Chicago. I wore a suit, but his outfit was more appropriate for the summer heat that day. I looked more or less like I thought that a young lecturer should look like at a meeting with a senior scholar. The clothes remained the only representations of our difference in status. The conversation itself was a free exchange of ideas between two people who had committed themselves to certain questions regarding human behavior, to the search for better-developed theories and for better means to examine such theories.

Much of Aaron's work consisted of simultaneously presenting his own work and the work of others. He developed his ideas by putting them side by side with others' similar ideas. He has given us a lesson on how to work; his intention was not to show that his approach was better; instead, he demonstrated how confrontations between the theoretical and practical ideas of different researchers give rise to new questions, which may bring us closer to a better understanding of human behavior. He showed us that a sense of coherence can be found through the loneliness of writing.

In the same spirit, **Rudolf Moos** of Stanford University has recently written to us about Aaron:

> He loved to engage in discourse with me and several of my colleagues and was always ready and eager to review his ideas and to learn about our comments and criticisms. We had quite a few long conversations about his ideas, which were incisive, original, and rather revolutionary for the time.
>
> Our own work focused heavily on the positive (and negative) influences of the social context on health and behavior and on the specific ways in which individuals could confront and manage stressful life events and life crises.

Regarding the way Aaron related to others' criticisms, **Shifra Sagy** (second author) remembers his openness to critical opinions of other researchers, let them be senior or junior. "He may have not been perceived as such in the academia," says Shifra, "but I knew this characteristic of his very well." She elaborates:

> He always encouraged me to express my opinion and even to argue with him. He liked to tell the story of how I became research coordinator for his big study on sense of coherence and retirees' adjustment. During my first job interview with him, I said he is very wrong, including only retirees in the study, and that to understand their adjustment to retirement he should also have a sample of the retirees' spouses.
>
> I went home and told my husband there is no chance that I got the job. Apparently, I was wrong; and the rest is history.

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[3] Beer Sheva is called the "capital of the Negev." The Negev is a dry, desert-like region in the southern part of Israel. The temperatures range from about 10° (centigrade) in the winter to 35–40° in the summer.

Fig. 3.1 Lund, Sweden, 1988

Det är viktigare att se på varför vi lyckas hålla oss friska än på vad som gör oss sjuka, säger Aaron Antonovsky, tillfällig gästprofessor i medicinsk sociologi i Lund — här på universitetets "gästcykel", som han flitigt nyttjat under månaderna i Sverige.

Deo Strümpfer, a friend and colleague from South Africa, added:

> He was the most supportive colleague and "teacher" a person can ever hope to have. His comments on pre-publication papers were incisive, yet always kind and warm; an amazing aspect was how quickly he responded. He connected persons with similar interests with one another.

Aaron's informality has apparently struck the memories of several other colleagues and students. **Moshe Prywes**, the first Dean of the Beer Sheva medical school (died 1998), said: "I first met Aaron when he was a fellow at the Guttmann Institute of Applied Social Research at the Hebrew University of Jerusalem. I couldn't help but notice the man who was wearing shorts and sandals." (Prywes, 1996, p. ii). **Asher Shiber**, a medical student and later a colleague, lately recalled that once every week or two, Aaron (and his wife, Helen) would invite 2–3 students to their house for dinner. **Ayala Yeheskel**, a social worker in Beer Sheva in the mid 1980s, told us:

> A while before a meeting with Antonovsky in January 1985, I lost my son, Eldad. At the time I was employed as a social worker in the Department of Psychiatry and in the Department of Family Medicine at the Soroka Medical Center in Beer Sheva, and spent much time teaching about the biopsychosocial approach. Beside that, I was exploring possible topics for my doctoral dissertation at the Hebrew University of Jerusalem, in the context of life stories of Holocaust survivors. About a month after my personal tragedy, emotionally uneasy, I turned to Antonovsky for counseling. With utmost patience and

> tenderness he listened, and at the end of the meeting he asked me a question I will never forget: "Ayala, you are now in the midst of your own private holocaust; how will you engage in a subject you are so personally close to? In any case, I will help you and wish you good luck." I felt I had received approval, from an admired and beloved person, of my ability—in spite my personal circumstances—to carry on with the tasks I had planned for myself.

Aaron's informality and warmth were expressed not only toward his colleagues and students. Several times, while on visits abroad, Aaron was interviewed by local newspapers. One would expect that a serious professor, a well-known scholar in his field, would present himself in formal dress. However, as the following photos show, this was not the case (Figs. 3.1 and 3.2).

The Establishment of the Medical School and the "Beer Sheva Spirit"

Although not directly related to salutogenesis or to Aaron's personal characteristics, it seems that a short background on the establishment of the medical school in Beer Sheva is needed in order to put several of the quotes and stories hereafter in context. **Shimon Glick**, professor of internal medicine and former Dean of the Faculty of Health Sciences at Ben Gurion University, who worked with Aaron from the first days of the medical school in the early 1970s, described the formation of the "Beer Sheva spirit" and Aaron's contribution to it:
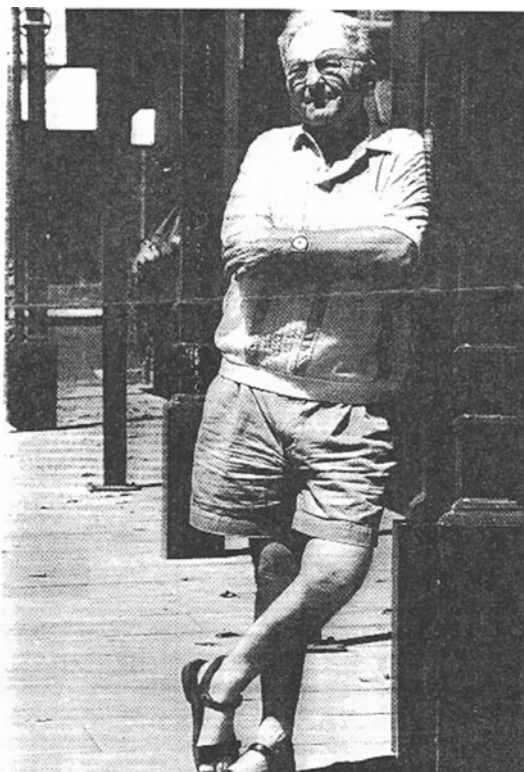
Fig. 3.2 Australia, 1994

When Professor Moshe Prywes of Hebrew University and Dr. Haim Doron of Kupat Holim[4] launched the new medical school at Ben Gurion University it was not to produce another medical school, but to create an educational institution of another type entirely. This was to be a school which would train humanistic physicians with an orientation to the needs not only of their specific patients but to the needs of the community in which the school is located. These physicians would be sensitive to the psychosocial and cultural aspects of medicine. Wonderful sounding words, but really neither of the two founders of the school, nor hardly any of the existing staff or of the staff recruited to begin to teach at the school had any real concept of how to accomplish this great and important mission. Prywes recruited Aaron to be the spirit and guiding light of the project. Aaron was a scholar in sociology of health, most of it theoretical, as sociology usually is; now here was an amazing challenge and opportunity to apply sociology to the creation of an institution which would train a new kind of physician to serve his/her community in the ideal manner, sensitive to the cultural and psychological needs of the patients and their community. Aaron was not just one of several department heads recruited to join the new medical school, but was perhaps the key individual who contributed to expressing and articulating clearly the school's goals and direction. He was among the handful of individuals who laid the framework for the school. Among the revolutionary concepts were exposure of students in their first school year to patients not just in the hospital, but in their community settings, teaching them how to speak to the patients,

how to understand the influence of their surroundings, economic and social conditions on their illness and the like. But first you had to pick the right kind of students who would be open to this kind of educational orientation. So one had to change the selection process which heretofore depended only on academic achievements.

All of these steps Aaron designed and taught us, step by step. Speaking for me personally who arrived as professor of internal medicine in 1974 when the school opened these ideas were new. I had never heretofore read an article in medical sociology, had never even heard of Antonovsky, but quickly became in some way a devoted follower of his. His ideas and concepts resonated with me and we shared fully the goals. He taught us how to interview patients, how to teach students to do so. He also created the admission process to the medical school, helped select the members of the admission committee, trained them and set into motion a unique process that has continued successfully for several decades. His leadership, absolute integrity and idealism permeated the process and made the admission committee a most prestigious and respected unit in the school, trusted by all.

In reality, most physicians and basic scientists at the institution did not really fully comprehend and buy into his philosophy, because their focus and training had been in the traditional biomedical model. But Aaron influenced enough of the key people and had the full support and backing of the medical school leadership. I believe that the so called "Beer Sheva spirit," which characterizes the school and its graduates to this day, is the spirit instilled by Aaron. And in the spirit of salutogenesis that is what keeps the institution on the "right" track often in the face of adversity and administrative and bureaucratic problems.

On a more personal level, **Shimon Glick** mentioned that during almost 20 years of working together with Aaron at the medical school, himself being religious and Aaron growing up in HaShomer Hatza'ir (encompassing great ideological differences and conflicting outlooks), they have always respected one another and had much in common.

Milka Sampson is secretary of the Department of Sociology of Health at Ben-Gurion University, of which Aaron was chairperson. She worked with Aaron from the time she was appointed, in 1984, until he retired in 1991. She described Aaron as "an honest and fair man, from whom I learned so much." She was a beginner secretary in her early 20s and remembers that Professor Antonovsky insisted she call him "Aaron." Before Milka, there was a secretary who would always address him as "professor." **Ofra Anson**, who worked with Aaron in the Department of Sociology of Health for almost 20 years, told us in a recent interview that Aaron once said to her in despair, relating to the secretary: "For Heaven's sake, we work together! Why doesn't she stop calling me 'the professor'?!"

Shifra Sagy (second author), who was Aaron's doctoral student and later a colleague in the department, mentioned the "Friday cakes": every Friday, it was someone else's turn to bring a cake to the staff meeting. Aaron had insisted that each one must prepare a cake by him/herself (one time, on his turn, he wanted to bake a fruit cake, but the only fruit he had

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[4] Kupat Holim, literally meaning "sicks' fund" is the Israeli health plan and medical insurance institution.

at home was a grapefruit; so he baked a grapefruit cake . . .). In these matters, everyone belonged to the same social status. For example, they would all take turns washing dishes.

These gatherings were devoted not only to professional matters. Actually, this was an opportunity to discuss a good book someone had read, or to celebrate someone's birthday, or to argue about politics. However, even though Aaron's belief system has probably influenced several of his career choices, he meticulously separated ideology from scientific objectivity. **Zeev Ben-Sira**, a medical sociologist from the Hebrew University of Jerusalem who died about a year after Aaron, addressed this issue in an obituary written a short while after Aaron's death (1995, unpublished):

> Aaron was an idealist, believing in the future of a better and just world. He vehemently contended against social injustice, discrimination, and intolerance. However he unpromisingly separated between his beliefs and his scholarly work. He strongly resisted any intrusion of ideologies into scientific objectivity.
>
> Doubtlessly, his beliefs in a better world influenced the choice of the field of his scholarly work, yet did not contaminate the objective, scrupulous and unbiased approach to his research.
>
> Understandably, then, his initial steps in his scientific career and research were devoted to the study of social discrimination, inequality, intergroup and ethnic relations, and of the absorption of immigrants.

Aaron's personal affection was combined with the great importance he ascribed to community medicine. **Aya Biderman**, a family doctor, recollects her meeting with Aaron:

> In 1980 I arrived for internship at the Soroka Medical Center in Beer Sheva, after studying medicine in Jerusalem. During that year I came to know Dr. Aaron Antonovsky, or "Aaron" as he insisted we call him.
>
> In 1981 I began to specialize in family medicine. The Department of Family Medicine was next door to the Department of the Sociology of Health, of which Aaron was chairperson. Aaron had special feelings toward our profession. He said family medicine was one of the "islands" in which the biopsychosocial model should be applied.
>
> As a young doctor, I conducted a study on the reasons why some patients do not attend their family doctor. I hoped to have it published and thought the data may interest Aaron. I met with him to ask for his help, and he agreed. Thanks to him I had my first publication in the medical literature. Aaron's willingness to help a young doctor, who had no experience in research or writing, was very significant and gave me the push and the enthusiasm toward research and academic practice.
>
> Aaron also agreed to teach a biopsychosocial seminar in our department. It was a great learning experience which we (the young doctors) carried with us for years.

The duality of Aaron the man and Aaron the scholar was also expressed in daily work. Alongside with the warm atmosphere and informal relationships in the department, Aaron was strict about work. The department was quite small (6–7 people), and it was important for Aaron that each one would know what others were working on, as a means of mutual fertilization. He demanded from himself what he asked of others, even when it came to things normally done by junior research assistants, such as counting questionnaires. Shifra recalls that when she was beginning her doctorate, Aaron insisted that she write in English. She then gave him her handwritten draft of part of her work. The next day, Aaron already gave it back to her, typewritten and corrected.

Indeed, Aaron gave his students lots of hard work. For Israeli students, most of whom have part-time jobs beside their academic studies, spending hours and hours in the library was not a trivial matter. **Asher Shiber** remembers his basic studies in medical school with Aaron: "The first thing he did was to send me to the library to read and read and read . . .. As an enthusiastic medical student, I wanted to do medicine, not read about medical research." As the time passed, though, students realized that hard work is productive, and they learned to appreciate Aaron's strictness. Asher sums this point: "With all my appreciation toward Aaron as a professional, the first thing that comes to my mind when I think of him is how much I loved him as a person."

Reading and reading and reading was not only a home work task which Aaron had given his students. Being a bookworm himself, Aaron believed in broadening one's education. **Joel Bernstein**, a neighbor, a friend and a colleague from the life sciences, wrote to us:

> Our professional backgrounds might not have led to any academic interaction was it not for the connection with Judy.[5] However, from the beginning there were social gatherings and I found myself in the company of a true intellectual. I do not think a visit to the Antonovsky home passed without me reviewing the books lying on the table or in the shelves. The collection was truly eclectic, with a scattering of Yiddish literature (in the original), philosophy, political science (much from the liberal academics of the 1950s and 1960s), and of course sociology and psychology. The Antonovsky abode was no more than 150 m from ours. They moved in about a year after we did, and like everyone had to install an irrigation system—for which, with only the experience of having done my house, I became the consultant, and occasionally technical assistant.

With Joel's help, Aaron spent several hours working in the garden. The first author of this chapter, having spent much time with Aaron in the garden, thinks it is possible that the seeds Aaron planted in the desert soil around the new house in 1973 were, to some extent, seeds of the salutogenic idea; more than once he would look at a few plants, some dying and some still alive, take a closer look at the green ones, and mumble "I wonder how they survive."

We believe that the importance Aaron saw in informal relationships and in expanding one's knowledge is tied to

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[5] Judy Bernstein was Aaron's research and teaching assistant and later became a faculty member in the Beer Sheva medical school, where she worked until her premature death in 2001.

Fig. 3.3 Aaron in the Ben Gurion University campus, mid 1970s

two unique qualities of the new medical school he had helped to establish, which we touched upon above, quoting Shimon Glick. First, the selection process: unlike at other universities, the main criterion for accepting candidates to medical school was not matriculation grades or psychometric scores, but rather results of two stages of semistructured interviews. Taking into account criticism on an interview as a selection instrument, it seems that in Beer Sheva they have managed to overcome its disadvantages. As Aaron wrote, "In our case, there has come into being a widespread belief among faculty and students: more humane and responsible, less individualistic and competitive, more compassionate and concerned" (Antonovsky, 1987a).

This quote brings back a story one of us (AA) heard once from **Dina Ben-Yehuda**, who was one of Beer Sheva's first graduates, and in recent years is chair of the Department of Hematology at Hadassah Medical Center in Jerusalem. It occurred when Dina was already a senior doctor at Hadassah (forgive us if there are minor inaccuracies). One evening, a senior citizen in his 80s was brought by an ambulance to the emergency room (ER), after having experienced dizziness and weakness. The doctor in charge of ER that evening, a senior resident, had the patient go through blood tests, a neurological test and an ECG. After reviewing the results, with no significant findings, the resident doctor ordered the nurse to discharge the guy and send him home. A young intern, who was with the resident, then said: "if I may, I suggest we keep him here for the night." The resident's response was "he's fine, nothing's wrong with him, and we need the bed." The intern replied: "Indeed, he seems to be okay; but he's a widower, no one is waiting for him at home. He would probably be happy to be around people, to have someone make him a cup of tea. I'm sure we can find a bed

for him. Why don't we let him spend the night here and send him home tomorrow morning."

Dina, who was off duty, happened to be in the ER at that time and overheard the conversation. She later approached the intern and said "You studied in Beer Sheva, right?" No doubt, she knew what she was saying …

The second unique quality of the Beer Sheva medical school was the very early stage at which students faced the real world of treating patients. During their first year, students visited community clinics in development towns in the Negev, where they met with the poor, the unemployed, the immigrants who had lost faith in the government's promises for good life. In addition, each student was hospitalized for a few days, without revealing to the medical staff the fact that they were not real patients. They learned that beside anatomy, physiology and chemistry, it is of utmost importance to learn about doctor-patient relationships (See Aaron on campus in Fig. 3.3).

Ascher Segall, another neighbor, friend and colleague, related to the link between Aaron the medical sociologist and Aaron the person:

One of his most striking characteristics was the ability to maintain complete objectivity as a scholar in parallel with a consistent commitment to the values in which he deeply believed. His development of the theory and practice of salutogenesis attests to his rigor and creativity in research while his focus on the humanistic dimensions of medical education reflected his world view as a human being … . His impact as a teacher at the Ben Gurion School of Medicine went far beyond his formal teaching.

The impact Ascher Segall referred to is also reflected in the words of Aaron's students. For example, in a tribute by Moshe Prywes in a special issue of the *Israel Journal of Medical Sciences* in memory of Aaron, he cited Professor

Dina Ben-Yehuda (whom we mentioned earlier), who was a former student of Aaron, a member of the first class of the Ben Gurion medical school, and 20 years later was his personal doctor at the Sharet Institute of Oncology in Jerusalem, where he was admitted after being diagnosed with leukemia. Prywes had asked her about Aaron, and she replied: "For Ben Gurion graduates, Professor Antonovsky was not just a name. He was a concept. A concept that contains within it much discussion and debate, all pertaining to the doctor-patient relationship … I took care of Aaron when he was sick and was with him until he died. During that time he was in full control of all decisions concerning himself. When his condition deteriorated he called me into his room and asked me to discontinue all treatment, and he took leave of his family and friends. I feel that I have lost the best of my teachers." (Prywes, 1996, p. ii).

The influence Aaron had on students was reciprocal, and so was the respect students and Aaron felt toward each other. Aaron's socialist ideology, and his strong belief in all people being equal, may have played a role in the way he prepared the draft for his first book, *Health, stress, and coping* (Antonovsky, 1979), as told by **Leonard Syme**, a colleague from the University of California at Berkeley:

> Aaron wrote me in the spring of 1977 to ask if he could spend a sabbatical year at Berkeley.[6] I said "yes!" immediately of course. When he arrived on campus in the fall of that year, I was able to find him a remarkable office. The office was in the basement of Stephens Hall at the end of a hallway that overlooked Strawberry Creek. It was basically isolated from the rest of the building and looked out over beautiful trees and a babbling little brook.
>
> Then we talked. Aaron said he had this idea about writing a book on something called "salutogenesis." He explained what this word meant and I was captivated. To have one of the world's great scholars come to Berkeley to explore a truly exciting and original idea was one of the great moments in my life. I asked how I could help. He said he would love to give a seminar that fall in which he could explore his ideas. It took two days to recruit an excited class of Social Epidemiology graduate students for the seminar.
>
> What happened next was one of the most amazing things I had ever seen. Aaron welcomed them to the seminar, explained how it would work, and assigned them to critically review a draft chapter that he had written after arriving at Berkeley. The next week, students discussed their assignment and, as they were leaving the room, they were asked to review another new chapter that Aaron had just written during the previous 7 days. This went on for 15 weeks. After the semester ended, Aaron had finished a complete draft of his book and was ready to send it off to a publisher. And the book, was, of course a classic.
>
> What a mind he had! I have thought about this remarkable Antonovsky phenomenon many years since it happened.

In 1983, Aaron returned to Berkeley for another sabbatical, again in an office overlooking the creek. **Guy Bäckman**, from the Åbo Akademi University in Finland, who met Aaron in Berkeley, wrote to us about their acquaintance:

> Unraveling the enigma or mystery of health was at that time a big question and theme among the researchers in Berkeley. Questions of frequent occurrence were "Why are only some of us sick although all of us are, at least in some way, exposed to risks" and "How do we manage to stay healthy." I had many fruitful discussions on those themes with Aaron in his office on the Berkeley campus, where, from the window, we could see lots of greenery and running water, which certainly stimulated talk about what it might be that keeps people in good condition and health in changing and sometimes risky and chaotic circumstances.

Haim Gunner, an old friend from the days of the youth movement and today a professor of environmental sciences, beautifully summarized the inseparable arenas that made up Aaron's life—the quest for a just world of social equality, and the academic journey toward unraveling the mystery of health:

> The engaged and enthusiastic academic of his later years slips into the image of the devoted kibbutznik and the fields where we shared tractor and plough. And in the evenings, on a crowded balcony with the hills of Galilee facing us, dissected the future with the complete confidence of youth (Fig. 3.4).

Fig. 3.4 Aaron at kibbutz Sasa, 1949

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[6] In 1977, Leonard Syme was Chairman of the Department of Biomedical and Environmental Health Sciences in the School of Public Health at the University of California, Berkeley.

Consciously or otherwise, Aaron's life was the model for the salutogenic principle. Two projects dominated his life: initially, the kibbutz and the model society to be derived from it, and always the ongoing fulfillment of the Zionist ideal. And then the building of the medical faculty at Ben Gurion University around the new concept of the family as the arbiter of the individual's health. For the kibbutz, comprehensibility was derived from the perhaps naive, but nonetheless coherent view that Marxism provided. And not only was the project which promised equality and security to be a local event but one which would eventually pervade the entire social structure. Marxism with its dicta and comprehensive weltanschauung made it eminently predictable. Our belief in our skills and the support of the community made it eminently manageable, and our passionate belief, buttressed by juvenile psychoanalytic insights, that it gave meaning to our lives make the kibbutz and its realization the perfect model for the principles of salutogenesis: comprehensibility; manageability and meaningfulness.

We wish we could devote a few paragraphs to the words Aaron's beloved wife, Helen, would have to say for this book. Unfortunately, Helen died in 2007. Along the 36 years of marriage to Aaron, she was his greatest supporter, admirer, and critic. There was probably not even one article, lecture, or book of Aaron's that went to press before Helen had read and approved the manuscript. A research psychologist and scholar in her own right, Helen was an inseparable part of the scholar and the man Aaron was.

New Horizons

Aaron died in 1994, but his salutogenic vision continues to stimulate research worldwide. We hope students and professionals around the world will profit from this comprehensive handbook on salutogenesis, and perhaps some of them will continue to develop salutogenic research and carry it on to new horizons. After all, salutogenesis is not limited to physical or mental health; it is a philosophy of human existence.

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Aaron Antonovsky's Development of Salutogenesis, 1979 to 1994

Hege Forbech Vinje, Eva Langeland, and Torill Bull

Introduction

"I hope it will become clear in due course that my concern is no mere semantic quibble and that (here), as in all of science, how one poses the question is crucial to the direction one takes in looking for the answers" (Antonovsky, 1979, p. 12).

When a person thinks seriously about a topic over a period of about three decades, it is a sign of good thinking and personal development if, at the end of that period, he/she is no longer in total agreement with former ideas. Adventures along the road become the germ (to use Antonovsky's own expression) of new ideas and layers of understanding. So was also the case with the development of the Salutogenic Model of Health (SMH), a development described by Antonovsky himself in retrospect as a 'personal odyssey' over decades (Antonovsky, 1990). While chapter three portrays Antonovsky, the man and the researcher, this chapter portrays the SMH and its development along with life events of its creator until the untimely death of Antonovsky in 1994. The chapter is based on the authorship of Antonovsky himself. Papers written in his last years, in which he looks back and comments on how his thinking developed, have been of particular value. These papers come in addition to the publications in which he originally introduced his ideas. In the SMH, there are important concepts the development of which we trace in this chapter:

stress, breakdown, resources, Sense of Coherence (SOC), and health.

Antonovsky departs, in his two major books (Antonovsky, 1979, 1987) from the traditional medical view of homeostasis being the basic human condition, and introduces the fundamental philosophical view of "*the human organism as prototypically being in the state of heterostatic disequilibrium as the heart of the salutogenic orientation*" (Antonovsky, 1987, p. 130). The release of *Health, Stress and Coping* in 1979 was a culmination of 15 years of work, during which he came to understand that disease, illness, and entropy (decline into disorder) are the norm rather than the exception to a rule of otherwise self-regulated homeostatic processes occasionally being disturbed with resulting pathology. He found it to be a futile task to try to understand and control every single factor that might lead to this or that particular disease. A more fruitful approach would be to focus on what he found to be the overall problem of active adaptation to an environment in which stressors are omnipresent and inevitable. He presented the term *negative entropy* (Antonovsky, 1987, p. 9) in which the goal was to search for useful inputs to the sociocultural context, the physical environment, and into the organism down to the cellular level to counter the normal tendency of entropy. So, negative entropy or *negentropy* as he also termed it, is actually something positive.

In his efforts to study health instead of disease, Antonovsky coined his famous new word: "*salutogenesis*— of the origins *(genesis)* of health *(saluto)*" (Antonovsky, 1979, preface vii), the intriguing question being: what are the origins of health? In the course of his research, Antonovsky correspondingly offered an answer to the question*: "The origins of health are to be found in a sense of coherence*" (Antonovsky, 1979, preface vii). This question and the answer constitute the SMH, the development of which is the focus of this chapter. In his descriptions of the model, most importantly of the process developing it, he points to the struggles it entailed for him, and for other

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researchers and practitioners, to move from one paradigm to another: *"I have no illusions. A salutogenic orientation is not likely to take over. Pathogenesis is too deeply entrenched in our thinking…."* (Antonovsky, 1996b, p. 171). Antonovsky urged, nevertheless, researchers of different professions, and with use of different methodologies, to work together to bring the knowledge of the origins of health increasingly further.

Antonovsky worked on the SMH for more or less 30 years. The first 15 years resulted in his book *Health, Stress and Coping* in 1979, and the presentation of SMH in its entirety. The next 15 years he was improving, refining, and cultivating the understanding of the model and the elements in it. The release of his 1987 book *Unravelling the Mystery of Health* represented a peak in his career. This release was originally intended to be a revised version of *Health, Stress and Coping*, but ended up being a whole new book, primarily presenting and explaining the concept of Sense of Coherence, his answer to the salutogenic question. His second book became a huge success and is translated into several languages.

In the preface of his first book, Antonovsky (1979) points out that he offers no easy solutions to the salutogenic question, and that he does not shy away from technical discussions when needed. His writings are directed not only to his colleagues in medical sociology, but also to sociologists, psychologists, psychiatric nurses, physicians, healthcare organizers, epidemiologists, architects, community organizers, and even more, who professionally or personally want to understand and enhance the adaptive capacities of human beings (Antonovsky, 1979, preface viii). His rather wide scope of intended audience is also reflected in the cross section of where he finds theoretical and intellectual inspiration. He expresses indebtedness to students, research assistants, and colleagues, without whom he would not have reached as far as he did. Repeatedly he points out the necessity and value of students' and peers' criticism not only for the ideas he took from them, but also for the intellectual challenge in the need to explain why. Throughout *Health, Stress and Coping* especially, but also in *Unravelling the Mystery of Health* Antonovsky specifies to whom he owes his intellectual debts. He names and credits scholars such as Hans Selye, René Dubos, George Engel, Thomas Holmes, Richard Rahe, John Cassel, and Melvin Kohn. As he believes to have broken new ground, he also claims to see echoes of his ideas everywhere (Antonovsky, 1987, p. 34). Although he says he finds evidence of the influence of great thinkers in his work, he describes a feeling of relative isolation when introducing the concept of salutogenesis and developing the SMH. As he narrates every other researcher of the time focused on the need to explain pathology, his feeling of isolation intensified with the introduction of the sense of coherence, the answer to the salutogenic question (Antonovsky, 1987, p. 33). In developing the SMH, not only did he detach himself from his earlier work, but also from the work of just about everyone else at the time. Around the time of the release of *Health, Stress and Coping* he finds, however, that the salutogenic question is increasingly asked, and he is intrigued to notice that serious research studies at least partly congruent with the SOC concept are being performed. He no longer feels alone as elements, variants, and alternative understandings of health and illness in the social sciences are surfacing (Antonovsky, 1987, p. 34). Antonovsky humbly credits this development primarily to the serious research of colleagues, and not so much to his own work. He dedicates a chapter in his 1987 book to convergences, discrepancies, and disagreements of the research of Suzanne Kobasa, Thomas Boyce, Rudolf Moos, Emmy Werner, and David Reiss and demonstrates once more how his ideas and theories develop in interaction with the theories of other scholars.

In all his writings about the SMH, Antonovsky gives a somewhat personalized account of how he came to work on the subject at hand, he presents challenges he encounters on his way and he clarifies and explains how he moves ahead and reaches the point at which he stands when writing this particular book or paper. Apparently he learnt this approach from Oriental scholars (Antonovsky, 1979, prologue 1). Being so detailed about his research process makes a very interesting read, and gives the impression of a humble scholar, on his way, inviting other researchers in on his reflections. Antonovsky declares that the SMH is merely one part of the conceptualization of what he finds to be one of the greatest mysteries of the study of human beings: *"How do we manage to stay healthy?"*(Antonovsky, 1979, preface vii). On a hopeful note, in *Health, Stress and Coping* he expresses a wish that the salutogenic question is convincing enough for researchers to take up the gauntlet and develop the model further; of which this book is a clear demonstration.

Stress Research: The Principal Note

At the outset Antonovsky was not particularly interested in stress (Antonovsky, 1990). In retrospect, however, he singles out research (Hollingshead & Redlich, 1958; Kardiner & Ovesey, 1951; Selye, 1956) causing him to stop a little and reflect upon questions relevant to stress during his training years in the Yale Sumner-Keller anthropological tradition in the fifties. Nonetheless, at the time he found them peripheral to his main interests, and he did not believe he would spend most of his career studying the stress process. His major interests during these formative years were in *"culture and personality, stratification and ethnic relations"* (Antonovsky, 1990, p. 71). Growing up as he did in

New York, being the son of Jewish parents, one can assume this interest was awakened by his exposure to both Jewish and North-American culture, cultures which he contrasted in several publications (see for example Antonovsky, 1971). In 1955/1956, Antonovsky finished his doctoral dissertation in which he investigated cognitive coping responses to socially structured psychosocial stressors (Antonovsky, 1979). Minority groups and marginal social situations were the focus of his doctoral research. He continued down this path for six more years, though his focus shifted to the organizational response on a group level to immigration and the stressors of low income and discrimination (Antonovsky, 1979). This shift was brought on by his work on the history of the Jewish labor movement in the United States (Antonovsky, 1961), and as a director of the New York State Commission Against Discrimination. The organizational response on a group level to the stressors of poverty and immigration became a major concern and he initiated several studies on the consequences of these stressors (Antonovsky & Lorwin, 1959). So although he also worked in a series of projects in the 1950s not connected to his main interests (an experience well known to many a young researcher), stressors and coping responses on both individual and group levels were of particular interest to him. He describes himself as an anthropologically oriented sociologist being interested in understanding the specifics of a society's competence—socioculturally—at coping with stressors it faces (Antonovsky, 1979). In retrospect, in his *Odyssey* article (Antonovsky, 1990), he presents himself as a sociologist of health involved in studying the stress process, and he returns some 25 years describing the starting point as being his work on life stressors.

After migrating to Israel in 1960, Antonovsky's research engagements brought more stimulation for the work he was to pursue for the rest of his life, and put him on the path of becoming a medical sociologist (Antonovsky, 1990, p. 72). He accepted a post at the Israel Institute for Applied Social Research in Jerusalem and begun teaching in the Department of Social Medicine. Together with Judith Shuval he started a research project on the latent functions of healthcare institutions (Schuval, Antonovsky, & Davies, 1970), and projects on coronary artery disease, multiple sclerosis, menopause, and series of studies on social class and aspects of health and disease followed (Antonovsky, 1979, the author, xiv). In 1963, he was invited by colleagues in neurology to take part in the design of an epidemiological study on multiple sclerosis, mainly because he had experience in survey research. Antonovsky joined because the study questionnaire included items on this particular area of interest for him—sociocultural factors (Antonovsky et al., 1965; Antonovsky & Kats, 1967). Included among the items was a list of stressors in objective form, such as social class and poor living conditions. This was part of Antonovsky's turn

toward a focus on social class, morbidity, and mortality. Studies from this period show his commitment to hypothesizing a direct link between stressors and disease, and especially social class and disease. He defined stressors objectively as those experiences that anyone anywhere would agree were stressors, pointing to going hungry for a long period of time as his illuminating example. His primary concern at this stage was to bring the data of stressors and disease together rather than going deeper and behind the data and ask Why? (Antonovsky, 1967a, 1967b, 1968).

In this period, he also coedited the book *Poverty and Health* with his colleagues in the field of sociology (Kosa, Antonovsky, & Zola, 1969). Together they pose the question: *"What are the stressors in the lives of poor people that underlie the brute fact that, with regard to everything related to health, illness and patienthood, the poor are screwed?"* (Antonovsky, 1979, p. 3). The Why question started forcing itself to the front of his interest. Reflecting about this period of his work Antonovsky recounts this is the time he starts to depart from what he calls the pathogenic orientation (Antonovsky, 1990). Fueling his pondering was Marc Fried's writings on social differences in mental health in the *Poverty and Health* book. Not only were the stressors important, Fried argued, the poor had fewer resources to battle these stressors (Antonovsky, 1979, p. 3). The book clearly stated the link between poverty and poorer health, bringing the sociological insight that poorer health was not only due to lower quality of health services to the poor, but also to the conditions to which the poor were exposed. As Antonovsky later wrote, the poorest life class *"had it rough down the line, whatever the dependent variable might be. This was the class which clearly had the highest stress load"* (Antonovsky, 1990, p. 73). In addition, there was another characteristic of the stress of the poor, and the minority groups, that gave insight to the Why question: namely the constancy of the stressors.

> *"The constancy of imposed stressors in such life situations, the continuous emergencies life presents, make it immensely difficult to resolve tension. Life for even the fortunate among us is full of conflict and stressors, but there are many breathing spells"* (Antonovsky, 1990, p. 74).

To understand the link between stressors and disease, Antonovsky recounts struggling with the methodological problem of getting the right list of life events or stressors to ask about in a survey. Eventually he came to terms with this not being a methodological but rather a philosophical issue; a result of what he called the pathogenic orientation, or the Parsonian view of social existence, referring to Parsons' sociological theory of the time (Parsons, 1951). At the time, research focusing on stressors tended to assume life as inherently stable and smooth with major stressors only occasionally occurring. Antonovsky (1990) claimed, however, this view not helpful and rather inadequate in

understanding the stress process. A more fruitful vision is to see life as turbulent and inherently full of conflicts and stressful. Once again, he drew inspiration from Fried and what he called chronic life strain, referring to long-lasting structural and cultural situations such as poverty, unemployment, marginality, etc, a sad fact of the lives of many persons (Antonovsky, 1990, p. 73). It is important, Antonovsky argued, to understand the ongoing strain of such situations as these are also the sources of many of the major life events, as well as of the daily hassles, which people face.

Continuing undisturbed along this line of reasoning in recapturing Antonovsky's research would however make us overlook another important development that came as a result of a parallel development: a study of psychosocial risk factors in coronary artery disease in the form of stressors in immigrants to Israel from North America (Antonovsky, 1967b). Being in fact a respondent in his own study, Antonovsky made the observation that yes, he was exposed to stressors—but they did not result in illness, he was coping successfully. This led him to focus on how specific serious stressors were dealt with (Antonovsky, 1990, p. 74).

> "This step marked the germ of the distinction I now make between tension and stress. I had not, and do not now, deny the potential illness consequences of many stressors. Well into the 1970s, I still tended to regard all stressors as unfortunate and pathogenic. But I had begun to ask: What really happens when one encounters a stressor?"

The observation was made that exposure to stressors did not invariably lead to stress and illness. Stressors of various kinds created immediate tension in an organism, but if it was resolved it did not result in *stress*, which was the health-damaging condition one needed to avoid. Coping and tension management emerged as important concepts and intervening variables between tension and stress/illness. At this point in his research there was a decisive change in his thinking, and in his scholarly pondering he turned to both Lazarus (Lazarus & Cohen, 1977) and Selye (1956) for inspiration. In brooding the why-question he realized that it is not just the stressors that are vital in this picture, also the poor have fewer resources in order to cope. There will be a difference if two people are exposed to the same stressor and one of them has lots of resources, while the other has practically none. Both the experience and its consequences will be different for the two. Antonovsky's study on cardiovascular disease and stress showed a link between the two. He presented these findings to an audience and was asked a thought-provoking question by Professor J. N. Morris: "*Why just cardiovascular disease, why not cancer or any other disease for that matter?*" (Antonovsky, 1972, p. 537). This set Antonovsky thinking, and the result was his realization that he was not really interested in *any* specific diseases, be it cancer or heart disease. He was interested in the illness consequences of

psychosocial stressors, *the breaking down process* taking place no matter how the consequence was expressed (Antonovsky, 1979, prologue 4.):

> "And then it struck me. By God, Morris is right. I am not interested in heart disease or multiple sclerosis or cancer; I am interested in breakdown. This, then, is the origin of my first major departure from the mainstream."

Antonovsky realized he was interested in a general state, which he wished to call *dis-ease*. However, he found this term impractical because it would be hard, he believed, to achieve a clear enough distinction from *disease*. There are unfortunate examples in publications since Antonovsky, in which "dis-ease" turned into "disease", the hyphen being ignored. Antonovsky's point has then not been communicated. In an effort to help this important distinction come across, we will in this chapter use a slash (dis/ease) instead of a hyphen. Hence, he landed on the term *break-down* which Professor Morris had used, and whom he credited in a later paper known as his breakdown paper (Antonovsky, 1972). It was, for technical reasons, not published until 1972, but the main message in this paper was that stressors, unsuccessfully confronted, lead on to breakdown. "*It contained the first answer to the problem posed by the distinction between tension and stress, an answer expressed in the concept generalized resistance resources*" (Antonovsky, 1990, p. 76).

As this outline shows, the late 1960s seem important years to the development of his model. Antonovsky claims 1967 and 1968 as especially vital years in this respect (Antonovsky, 1979, 1990). In the years to come, he was committed to conceptualizing his insights, starting with an explicit focus on resources.

General Resistance Resources: A Shift to Another Key

Because people meet such a variety of demands, Antonovsky found it useful to focus on understanding the *generalized resistance resources (*GRRs*)* because they could be applied to a wide range of demands or stressors. He proposed to distinguish between two kinds of problems (1) the classical medical problem of why an individual or a group have the disposition for a particular disease and (2) the problem of experiencing *dis/ease* or *breakdown*, unrelated to diagnosis and disease. The latter of these two became his focus. Further he theorized that all diseases have something in common, and that there are GRRs to counteract all of these (Antonovsky, 1979). Once again he turned to the work of Selye and found particular inspiration in Selye's term *general adaptation syndrome* (Selye, 1956, 1975). Antonovsky (1979, prologue 5) argues: "*it seems imperative*

to focus on developing a fuller understanding of those generalized resistance resources which can be applied to meet all demands."

In 1967, Antonovsky made the comment that *"the impact of a given external situation upon a person is mediated by the psychological, social and cultural resources at his disposal"* (Antonovsky & Kats, 1967, p. 16). However, Antonovsky later calls this mentioning of resources essentially a remark made in passing (Antonovsky, 1974, p. 246). In the breakdown paper, he returns to the issue of resources with a clear intent and introduces his most general definition of a GRRs: *"any characteristic of the person, the group, or the environment that can facilitate effective tension management"* (Antonovsky, 1972, p. 99). In the same paper, he classifies three large groups of resources (1) adaptability on the physiological, biochemical, psychological, cultural, and social levels; (2) profound ties to concrete, immediate others; and (3) commitment of and institutionalized ties between the individual and the total community (Antonovsky, 1972, p. 100). Nevertheless, his formal definition of GRRs was not published until 1979 (see Fig. 4.2). In *Health, Stress and Coping,* he also emphasized the importance of *specific resistance resources (SRRs),* as he found them both numerous and frequently beneficial in specific circumstances of tension (Antonovsky, 1979, p. 99):

> *"They (SRRs) are many and are often useful in particular situations of tension. A certain drug, telephone lifelines of suicide-prevention agencies or an understanding look in the eyes of an audience to whom one is lecturing can be of great help in coping with particular stressors. But these are all too often matters of chance or luck, as well as being helpful only in particular situations."*

Summing up, one important observation from this period was that stressors do not have to lead to disease, because tension management and coping might function as intervening variables (effect modifiers). The degree to which people were exposed to stress, and the degree to which one had resources to cope, varied. Sure, stressors created tension, but this tension could be successfully resolved. Influenced by René Dubos and his warnings against *the mirage of health* and the escalating wars against every possible disease (Dubos, 1960), Antonovsky moved on to explore the term *adaptability* in psychological, social, and cultural contexts. Antonovsky called it *active adaptation,* and presented is as a complementary term to *the magic bullet* in the pathogenic paradigm; "*Salutogenesis, (…) leads us to focus on the overall problem of active adaptation to an inevitably stressor-rich environment*" (Antonovsky, 1987, p. 9).

In his accounts from 1990, Antonovsky finds himself at this time in his work nonetheless still firmly grounded in pathogenic thinking. He saw stressors as a threat and coping as a mean to prevent illness and disease. However, in 1967–1968 there was yet another important development. Antonovsky was, parallel to the heart disease paper, working on a study of menopausal women (Antonovsky, Maoz, Dowty, & Wijsenbeek, 1971). One finding was that women who had been exposed to severe stressors did poorer in later stages of life. One of the severe stressors given attention in this study was having experienced Holocaust (Antonovsky preferred to call this *a horror*, finding stressor to be a too mundane expression). Most of the women having experienced Holocaust did significantly poorer than other women did. However, a third of them did no poorer at all! This caused Antonovsky to ask, *"What was the miracle?"* (Antonovsky, 1990, p. 76). Here, we see an example of Antonovsky focusing on the deviant case (see section 'Harmonizing: SMH's relevance for health promotion' for further comments on this principle). Included in the questionnaire for the menopause study were items on social integration. Antonovsky commented that this study, being prior to the main development of the later so popular concept *social support*, rather asked *how much do you feel you are needed by your spouse, children, etc*. The focus was being turned on its head toward being on the giving end rather than the receiving end of support, and this he commented in recollection, was the germ of the *meaningfulness* element of sense of coherence (Antonovsky, 1990, p. 75).

The early 1970s therefore sees Antonovsky as having concluded that he was not interested in specific diseases but in a general state of breakdown which comes because of unsuccessful confronting of stressors.

> *"…breakdown is a result of unresolved disturbance of homeostasis….It is not, then, the imbalance which is pathogenic. It is, rather, the prolonged failure to restore equilibrium which leads to breakdown. When resistance resources are inadequate to meet the demand, to resolve the problem which has been posed, the organism breaks down"* (Antonovsky, 1972, p. 541).

The dependant variable that interested him was breakdown, and the independent variables of his concern were the GRRs. The level of stressors, whether objectively or subjectively defined, was not at this point of any interest to him (Antonovsky, 1979, prologue 5). A person could cope successfully with stressors through application of resources, called GRRs, thereby preventing the tension caused by stressors being transformed into stress.

To Antonovsky it was obvious that having resources, being conscious about them and having ability to use them to counter stressors was an important factor in avoiding dis/ease, or breakdown. He had already coined the concept generalized resistance resources (Antonovsky, 1972, p. 99). He also had observed the miracle of people doing well despite horrible experiences. How was that possible (Antonovsky et al., 1971)? Furthermore, he had conducted a community health study in Beersheba, finding a link

between GRRs and health, later to be published as a chapter in a book edited by the acknowledged stress-researchers Barbara and Bruce Dohrenwend (Antonovsky, 1974). In 1973, the Beersheba community health study was presented at a large stress research meeting in New York, arranged by the very same Dohrenwends. At this point, GRRs had not yet been carefully defined theoretically. Antonovsky states:

> "… there was some general sense that it referred to some resource which, intuitively, we thought was good to have, an intuition sometimes supported by empirical data. (…) we were all dealing with the lack of GRRs, and hypothesizing that people with high stressor loads who lacked GRRs would become ill" (Antonovsky, 1990, p. 76).

Though elements of the SMH were taking shape, Antonovsky was still not ready to formulate the full model. He describes a development over 10 years from 1968 (Antonovsky, 1990, p. 76):

> "By 1968, as I have indicated, I had realised that I was interested in dis/ease, not in diseases. But it took almost another decade, involved in the growing awareness of the ubiquitousness of stressors and a greater focus on resistance resources, before I was able to take the next step."

One of the important happenings during this decade was that he moved from Jerusalem to Beersheba in 1973. Helping setting up a community and primary care oriented medical school there had the consequence that he thoroughly thought about the kind of doctors he and they wanted to educate (Antonovsky, 1990, p. 76). Starting by turning to the GRRs concept, still not properly defined, he was inspired to formulate his research findings and theoretical ideas into a fuller picture as he developed the curriculum. He chose to call the new department within the school *The Sociology of Health* (not medical sociology, which was commonly used in the field elsewhere). As an indication of the zeitgeist, he recounts that the Research Committee of the International Sociological Association needed 13 years to change its name from Medical Sociology to the Sociology of Health (ibid, p. 76). Bringing forth the illustration of *the river of life* and the bias of the downstream focus that was debated at the time, Antonovsky wanted to educate doctors who devoted their energies to prevent people from being pushed into the river, rather than pulling them out at the downstream end. Over time, however, Antonovsky's perspective on stress and health developed, and he came to acknowledge that there are no people on the river banks—all are in the river, as all are exposed to stressors and illness. *"Of course we differ on how close we are to drowning. But as my friend and colleague Rose Coser has taught me, 'we are all terminal cases'"* (Antonovsky, 1990, p. 76).

This differentiated his view on health and illness from that of colleagues—we are not all well and occasionally fall ill, we are all on a continuum with different degrees of health (Antonovsky, 1990, p. 76):

> "It was at this point that I began to see the work of my colleagues in stress research as being characterized by a pathogenic orientation. They were asking: 'What makes people have a heart attack? Develop cancer? And so on?' I had earlier moved to the question 'What makes people sick?' But now I took a decisive further step. It was not only a matter of standing the question on its head and asking 'What makes people healthy?' I proposed asking, rather, 'What moves people toward the health end of the health ease-dis/ease continuum?'"

Because he was not a clinician himself, he argued, he was not in the habit of categorizing people as healthy or sick. Moreover, he understood that his formation of stressors and GRRs moved him much further than the preventive medicine perspective (Antonovsky, 1990). He discussed the need to exceed the traditional medical dichotomy of sick/healthy in the pathogenic paradigm. From the perspective of heterostasis and entropy, it was obvious to him that every one of us, as long as we live, is in part healthy and in part sick (Antonovsky, 1979, prologue 5). He called this *the health ease-dis/ease continuum*, or *breakdown continuum*, and he defined the construct operationally in a mapping sentence (Fig. 4.1).

He became, however, increasingly more reluctant to using the word breakdown:

> "I used the term breakdown (in 1972). I then indicated that I would have preferred to use dis/ease…..The term breakdown seems to have caught on, and I shall continue to use it, asking the reader to bear with me and to keep in mind that the fully appropriate term is the ease-dis/ease continuum." (Antonovsky, 1979, p. 57)

In 1979, Antonovsky recollects, however, that the very use of the term breakdown points to the fact that he in the early 1970s had a pathogenic orientation, *"Like everyone else,"* he adds (Antonovsky, 1979, prologue 5). The realization of the 'health ease-dis/ease continuum' extended his interest from Holocaust survivors to all humans. As some were doing better than others were, he finally in the mid-1970s formulated the question: *"What moves people towards the health end of the health ease-dis/ease continuum?"* He needed a term for this—for the movement toward the health end of the continuum—and landed on salutogenesis, which he had himself used in another context 10 years earlier. In recollection, he remarks (Antonovsky, 1996b, p. 171): *"I did not really depart from the mainstream until I coined the term salutogenesis in 1978."* Later in this chapter, we focus more on Antonovsky's development of the health concept, but for now we follow Antonovsky to Berkeley, where important developments took place. In the *Odyssey* (Antonovsky, 1990), he narrates that he leaves for his sabbatical with a nagging sense of discontent. While

Fig. 4.1 Mapping sentence
definition of health ease-dis/ease
continuum (Antonovsky, 1987,
p. 65)

A. Pain

Breakdown is any state or
condition of the human
organism that is felt by the
individual to be

$\begin{cases} 1.\ \text{not at all} \\ 2.\ \text{mildly} \\ 3.\ \text{moderately} \\ 4.\ \text{severely} \end{cases}$ painful;

B. Functional Limitation

that is felt by him/her
to be

$\begin{cases} 1.\ \text{not at all} \\ 2.\ \text{mildly} \\ 3.\ \text{moderately} \\ 4.\ \text{severely} \end{cases}$ limiting for the
performance of life
activities self-defined
as appropriate;

C. Prognostic Implication

that would be defined by
the professional health
authorities as a

$\begin{cases} 1.\ \text{not acute or chronic} \\ 2.\ \text{mild, acute, and self-limiting} \\ 3.\ \text{mild, chronic, and stable} \\ 4.\ \text{serious, chronic, and stable} \\ 5.\ \text{serious, chronic, and degenerative} \\ 6.\ \text{serious, acute, and life-threatening} \end{cases}$ condition;

D. Action Implication

and that would be seen by
such authorities as requiring

$\begin{cases} 1.\ \text{no particular health-related action} \\ 2.\ \text{efforts at reduction of known risk factors} \\ 3.\ \text{observation, supervision, or investigation} \\ \quad \text{by the health care system} \\ 4.\ \text{active therapeutic intervention} \end{cases}$.

being satisfied with posing the radically new salutogenic question in the mid-70s, he was not completely happy with his tentative answer, GRRs.

Sense of Coherence: Successive Notes of the Scale

With many ideas in his luggage, he left for a sabbatical at Berkeley in 1977. During this year, he wrote *Health, Stress and Coping* published in 1979 and which: "*contained the first full statement of what I call the salutogenic model and its core concept, the sense of coherence*" (Antonovsky, 1990, p. 77). He approached the salutogenic question, and knew he already had part of the answer: GRRs. Working on his data using a technique called *smallest space analysis*, which renders a graphic map of variables; he constantly saw *a factor X* turning up, being closer to health than any of the other GRRs were. Was it a common element of all GRRs? What did GRRs have in common that led to health? Antonovsky knew social support was a GRR, and that Cassel (1976) theorized that social support worked through providing various kinds of feedback. Antonovsky theorized that all GRRs provide feedback of some kind, "*… sending messages like: Here is the right track; you can handle things; you are of worth*" (Antonovsky, 1990, p. 78). He was now in the position where he could formally define GRRs (Fig. 4.2).

Furthermore, he could also now describe factor X, that operated at a different level than the other GRRs, revealing a phenomenon about a specific orientation to life. Repeated and consistent messages of the kind described just above led one to become high on X, while confusing and negative messages led one to become low on X. He called X *Sense of Coherence (SOC)*, and defined it the following way (1979, p. 123):

> "*A global orientation that expresses the extent to which one has a pervasive, enduring though dynamic, feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected*."

In the preface of *Unraveling the Mystery of Health*, Antonovsky credits his wife Helen as the one who proposed the term *the sense of coherence*. Being a developmental psychologist with anthropological training, she was able to grasp exactly what he wished to say, and he considered her a most competent professional critic (Antonovsky, 1987, preface xviii). Antonovsky could now depict the model in full, and Fig. 4.3 shows how it was rendered in the 1979 book. In 1990, Antonovsky comments that stressors were in the periphery in his 1979 model because he at that time had had his focus on resources. This shows how Antonovsky himself did not see the model as fixed once it had been described, but opened up for further developments along with new insights.

Fig. 4.2 Mapping sentence definition of GRRs (Antonovsky, 1979, p. 103)

A GRR is a
{
1. physical
2. biochemical
3. artifactual-material
4. cognitive
5. emotional
6. valuative-attitudinal
7. interpersonal-relational
8. macrosociocultural
}
characteristic of an

{
1. individual
2. primary group
3. subculture
4. society
}
that is effective in
{
1. avoiding
2. combating
}
a wide variety of stressors

and thus preventing tension from being transformed into stress.
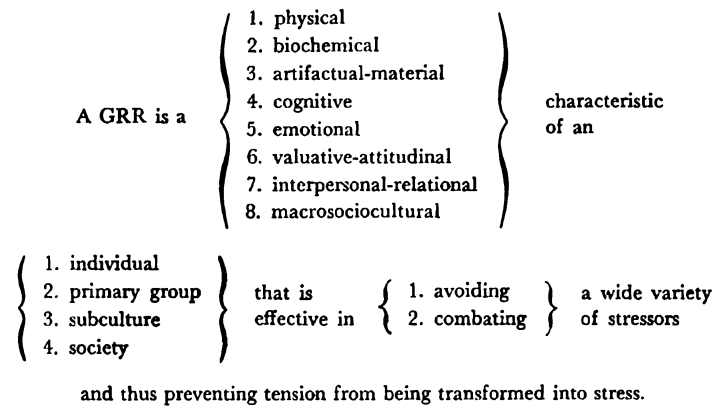
Antonovsky was now eager to test the new concept SOC empirically and after his return to Beersheba he developed a 29-item instrument that he felt was good. With this, he returned to Berkeley in 1983 for a second sabbatical aiming to test the questionnaire. In the meantime, he had gotten a request to write a second edition of *Health, Stress and Coping*, which had been well received. He proposed rather to add an epilogue chapter—which turned into a completely new book: *Unravelling the mystery of health* (Antonovsky, 1987). This book has a deeper treatment of the sense of coherence, and we can see the definition being expanded (Antonovsky, 1987, p. 19):

> "*The sense of coherence is a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement.*"

In 1990, Antonovsky still remains with this definition and comments that element (1) *comprehensibility* and (2) *manageability* were present in the 1979 definition, but that element (3) *meaningfulness* is new, and that this element grew steadily more important in his thinking (Antonovsky, 1990, p. 78). He also commented that the second definition therefore has less of a cognitive emphasis than the initial one. The process of operationalizing the concept to be able to test the model leads Antonovsky to become aware of its inadequacies. He narrates that he also at the time had become aware of the works of Moos (Moos, 1984, 1985), Kobasa (1979, 1982), and Victor Frankl (Frankl, 1975), which he believed, in his terms, were working on the salutogenic problem (Antonovsky, 1990). In the 1979 version of the SOC definition, he was clearly influenced by systems theory and ideas of order and disorder, and he gave much room to outlining the first component *comprehensibility*. A person could not deal with a stressor unless one felt one had a clear understanding of the character of the problem at hand. In delineating the second component *manageability,* he was inspired by the work on mastery and coping, particularly locus of control (Rotter, 1966). As he continued to deepen his understanding of coping it became, in *Unraveling the mystery of health*, important to him to underline that the crucial thing about *manageability* is the sense that adequate resources to cope with stressors are to be found either: "*…in one's own hands or in the hands of legitimate others*" (Antonovsky, 1990, p. 79). The third component *meaningfulness* is new and delineated fully in the 1987 book. It had been mentioned only briefly in 1979, and phrases such as *the world makes sense* was primarily used to describe a cognitive perception of order. Inspired by the work of for instance Victor Frankl, Antonovsky now understands meaningfulness in the emotional sense as a way of looking at life as worth living, providing the motivational force: "*…which leads one to seek to order the world and to transform resources from potential to actuality*" (Antonovsky, 1990, p. 79).

Antonovsky used the terms *entropy* and *negative entropy* (*negentropy*) to explore and describe the connection between chaos and order, and he argued that systems theory certainly is a valuable theoretical framework for understanding sense of coherence as an answer to the quest creating order out of chaos. Throughout *Health, Stress, and Coping* Antonovsky's concern was the SOC of individuals, he only loosely suggested that the concept could be employed at the social level. In *Unravelling the Mystery of Health*, he questioned this assumption and discussed the SOC as a group property more in depth. Rhetorically he asks (Antonovsky, 1987, p. 170): "*Is it too grandiose an ambition to set as a goal moving closer to an integrated theory that proposes how any system copes with its reality?*" Antonovsky discussed relevant preconditions, or dimensions for it to be meaningful to talk of a group SOC. He considered size as the most crucial parameter, and he was quite assured that SOC would be an

Key to Figure1

Arrow A: **Life experiences shape the sense of coherence.**
Arrow B: Stressors affect the generalized resistance resources at one's disposal.
Line C: **By definition, a GRR provides one with sets of meaningful, coherent life experiences.**
Arrow D: **A strong sense of coherence mobilizes the GRRs and SRRs at one's disposal.**
Arrows E: **Childrearing patterns, social role complexes,** idiosyncratic factors, and chance **build up GRRs.**
Arrow F: The sources of GRRs also create stressors.
Arrow G: Traumatic physical and biochemical stressors affect health status directly; health status affects extent of exposure to psychosocial stressors.
Arrow H: Physical and biochemical stressors interact with endogenic pathogens and "weak links" and with stress to affect health status.
Arrow I: Public and private health measures avoid or neutralize stressors.
Line J: A strong sense of coherence, mobilizing GRRS and SRRs, avoids stressors.

Line K: A strong sense of coherence, mobilizing GRRS and SRRs, defines stimuli as nonstressors.
Arrow L: **Ubiquitous stressors create a state of tension.**
Arrow M: **The mobilized GRRs (and SRRs) interact with the state of tension and manage a holding action and the overcoming of stressors.**
Arrow N: **Successful tension management strengthens the sense of coherence.**
Arrow O: **Successful tension management maintains one's place on the health ease/dis-ease continuum.**
Arrow P: Interaction between the state of stress and pathogens and "weak links" negatively affects health status.
Arrow Q: Stress is a general precursor that interacts with the existing potential endogenic and exogenic pathogens and "weak links."
Arrow R: Good health status facilitates the acquisition of other GRRs.

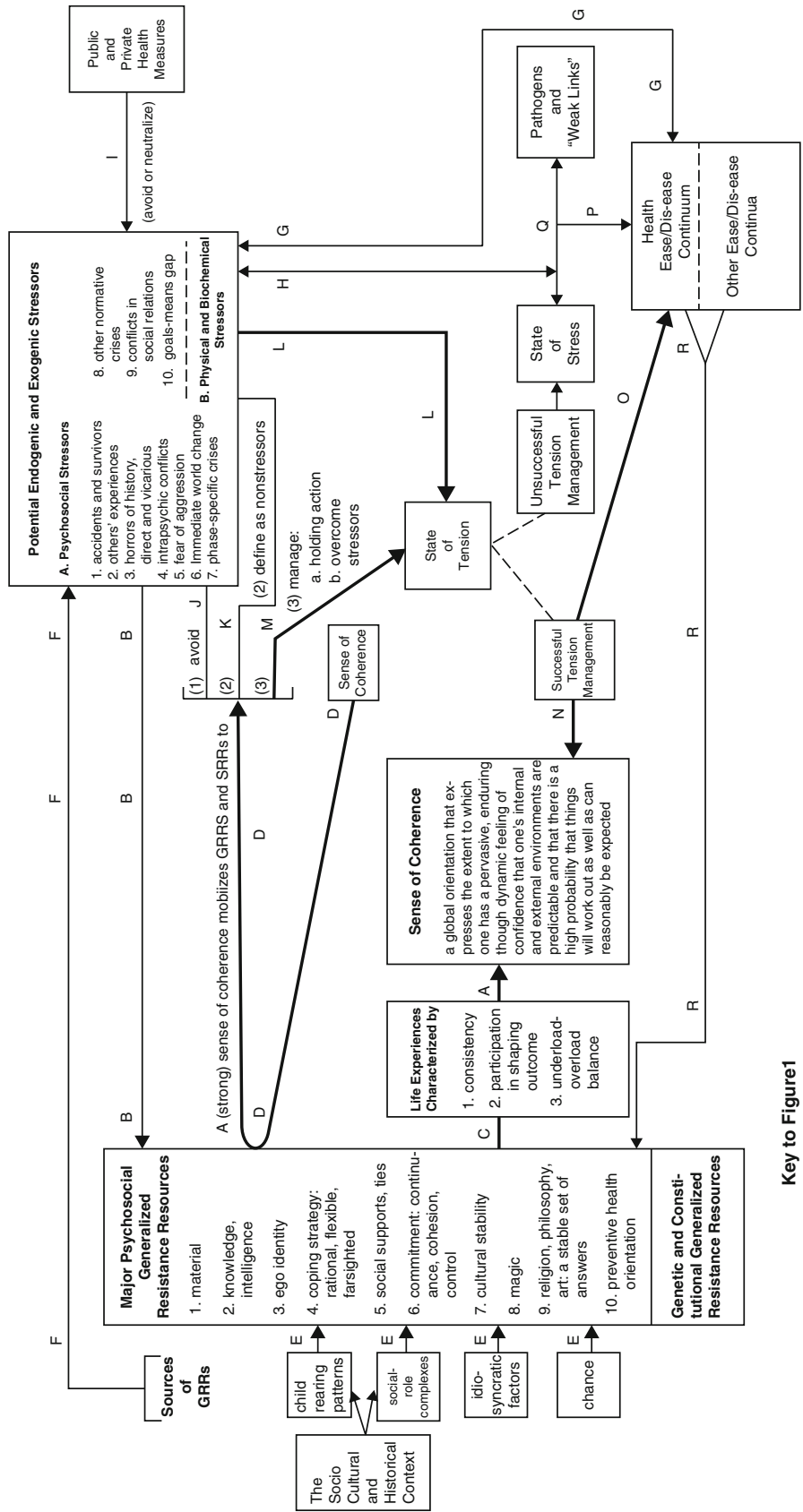**Note: The statements in bold type represent the core of the salutogenic model.**

Fig. 4.3 The Salutogenic Model of Health (Antonovsky, 1979, pp. 184–185)

emergent group property in primary groups such as the family, a small local community, a work or a friendship group or the like. However, he felt increasingly less confident about whether SOC *"...is applicable to a large-scale, complex, diversified collectivity"* (1987, p. 175). He made a distinction however, between collectivities that are social categories, and collectivities that are associational in character, arguing that there must be a sense of group consciousness, a subjectively identifiable collectivity, before it makes sense, or is even possible to talk of a group SOC. Still, Antonovsky emphasized, the size of the group and a sense of group consciousness will not indicate whether the group has a weak or a strong SOC. He suggested that a group with a strong SOC would be characterized by (Antonovsky, 1987, p. 174): *"A group whose individual members tend to perceive the collectivity as one that views the world as comprehensible, manageable, and meaningful, <u>and</u> among whom there is a high degree of consensus in these perceptions."* Describing it like this, one has to move beyond the mere aggregation of data on the SOC of individuals in a group, and take into account the perceptions by individual members of the group of how the group sees the world. In addition, he claimed one also has to consider the extent of the consensus of the perceptions by looking at the variance of individual scores.

Antonovsky (1987, p. 176) brought forth yet two relevant dimensions for group SOC (1) the duration of the existence of an identifiable collectivity and (2) that membership in the collectivity is of overriding centrality in the life of each member, and to such an extent that the self and the social identity are deeply interwoven. His argument about the duration of the existence of the group is closely tied to his hypothesis that SOC is a rather stable property for an individual, and that one's location on the continuum will not change much after one has reached the age of thirty. He thus argued that it would be difficult to imagine a group SOC, strong or weak, if the social context and conditions were not relatively stable and consistent over several years. The prerequisite of a yearlong group duration implies that there most likely will be turnover among the individual members of the group. However, the turnover must not unsettle the stability and consistency of the collectivity. The subjectively identifiable group must remain (Antonovsky, 1987, p. 176). A final important possibility of the group SOC raised by Antonovsky is whether it makes a difference to an individual's health to belong to a group or groups with a weak or strong SOC. He asks (Antonovsky, 1996a, p. 17): *"What is the relationship between the movement of the person toward wellbeing and the strength of his/her collective SOC?"* His hypothesis is that, yes, it makes a difference in terms of health prediction, beyond merely knowing the SOC level of the person. First, because of the importance of the social environment in giving experiences that are

decisive to the development of a strong or weak SOC. He emphasized that groups with a strong SOC tend to structure situations and thus provide experiences that over time will enhance the SOC of the group's individual members. Second, and even more important he believes, in order to cope with some stressors interventions are required by collectivities rather than by individuals, pointing to working life as an illustrative example (Antonovsky, 1987, p. 178). Some stressors stem from conditions deeply rooted in organizations, and/or in the structure of society and confront the entire collectivity, and therefore call for group resources to be properly dealt with. It is about the group's ability to mobilize and activate its collective resources to confront the problem and relieve tension, more than the person needing the group to confront a stressor that he/she cannot deal with alone. In such cases, the individual SOC is relevant and important in regulation of emotion. In coping with the collective stressor directly, Antonovsky claims (1987, pp. 178–179):

> *"...it is what the group does that matter...Only individuals are more or less healthy, depending, among other things, on how well they manage tension, but in the face of collective stressors, the strength of the group, rather than of the individual, SOC is often decisive in tension management."*

Through his arguing Antonovsky tried to make sense of SOC as a group property by use of quantitative measures, which of course reflects his training and the dominant way of doing science at the time. Yet, he claimed that the ontological beliefs of entropy and negentropy and the search for order out of chaos require multiple approaches across disciplines. His idea of taking into account the perceptions by individual members of the group, points in the direction of qualitative research. His suggestion to move beyond aggregated individual SOC data and to deal with the cultural production of the group as a source of data for understanding group SOC does the same. He advocated observing collective behavior such as myths, rituals, humor, language, ceremonies, and so on of the group (Antonovsky, 1987, p. 176), and by that, as we understand it, he is calling for a variety of methodological approaches. This is a call, which possibly has better circumstances to be answered in our time than in his.

Tuning the Model: General Resistance Resources—General Resistance Deficits

Another of the elements in the SMH which he did change his conceptualization of in the 1987 book was *stressors*. In 1979, he was quoting Lazarus and Cohen (1977, p. 109) and defined stressors as: *"A stimulus which poses a demand to which one has no ready-made, immediately available and adequate response"* (Antonovsky, 1979, p. 72). The strength

of this definition, according to Antonovsky, was that one could classify stimuli without knowing the consequences—whether tension is transformed into stress or not. However, in 1987, he linked the definition of stressors to resources. He claimed that the absence of a GRR could become a stressor (Antonovsky, 1987, p. 28). One illustrative example here could be the absence of money (authors' comment). Such an absence of resources he called *Generalized Resistance Deficit (GRD)*. He suggested that the total stressor-resource situation (GRR-GRD) could be captured by a continuum, with many potential subcontinua (Antonovsky 1987, p. 28):

> "I propose then, that we can speak of 'major psychosocial generalized resistance resources—resistance deficits' (GRR-RDs) as one unified concept. In each case—wealth, ego strength, cultural stability, and so on—a person has can be ranked on a continuum. The higher one is on the continuum, the more likely is it that one will have the kind of life experiences that are conducive to a strong SOC; the lower one is, the more likely is it that the life experiences one undergoes will be conducive to a weak SOC. A stressor, in sum, can be defined as a characteristic that introduces entropy into the system—that is, a life experience characterized by inconsistency, under—or overload, and exclusion from participation in decision-making."

Thus, any phenomenon can be characterized by the degree to which it creates these three important life experiences: *consistency, load balance, and participation in decision-making*. These are the life experiences conducive to SOC, and every individual can be placed on a continuum for each of these life experiences. If an experience is toward the fortunate end of these continua it indicates the existence and use of GRRs, if it is toward the unfortunate end it indicates the lack of GRRs and thus a GRD. Antonovsky was optimistic for the utility of this new reconceptualization of stressors (Antonovsky, 1987, pp. 30–31):

> "Subsuming the stressors, and particularly chronic, endemic stressors, under the overarching concept of GRR-RDs provides a theoretical basis for constructing a measurement tool that links the resources and stressors—would that I could coin a single word!—through the SOC to health outcome."

This highlights Antonovsky's understanding of not focusing on stressors alone, not focusing on resources alone, but focusing on their combined effect to create life experiences that are characterized by consistency, load balance, and participation in decision making. Such experiences are conducive to a high SOC, and therefore move a person toward health.

The SMH demonstrates that sense of coherence and different resistance resources work together in a mutual interplay. The more resistance resources people are conscious of and are able to mobilize and make use of, the higher SOC. A higher SOC will in turn help people mobilize more of their resources, leading to better health and well-being. Thus, SOC is flexible rather than being constructed around a fixed set of dominant strategies such as the classic coping

strategies (Antonovsky, 1987, 1992, 1993). Antonovsky lists a spectrum of ways in which SOC affects health (Antonovsky, 1990, p. 78):

- SOC leads one to engage in health promoting behaviour, for instance through attitudes.
- SOC influences one's process of defining a stimulus as a stressor–nonstressor. Some stimuli might rather be seen as neutral, or even salutary.
- SOC leads one to interpret a stressor as ordered.
- SOC leads one to search one's repertoire for GRRs that are appropriate for the specific situation, including the resources available through one's network, thereby giving a flexible rather than rigid pattern of response.
- SOC-induced response patterns cause the brain to send messages to activate appropriate bodily resources.
- SOC opens one up to analysis of the results of one's behaviour and makes one ready to redesign response as needed.
- SOC makes one aware of the need to cope both instrumentally as well as emotionally.

In Chap. 5 in *Unraveling the mystery of health*, Antonovsky writes he believes that it is in early adulthood that one's location on the SOC continuum becomes more or less fixed. He claims that SOC developed in this period of life stabilizes and remains at this level and that only rarely might experiences in life improve the level of SOC afterward (Antonovsky, 1996b, p. 175):

> "I have often committed myself, orally and in writing, to the hypothesis that the strength of a person's SOC is more or less stabilized by roughly the age of 30, that is, when one has been in the normal work and family situation of one's culture and subculture for a number of years."

His hypothesis is based on him arguing there are no major changes in the quality of the experiences that affect the SOC after the age of 30 (Antonovsky, 1987, p. 123):

> "For the middle-aged adult, the new marriage, new job, new country, new social climate, or new therapist can only at best (or at worst) begin to initiate change, insofar as this stimulus provides a different long-range set of life experiences characterized by different levels of consistency, load balance, and participation in socially valued decision making."

However, he emphasized that his position is a hypothesis based on theoretical considerations and is not based on empirical evidence (Antonovsky, 1996b). Further, he maintained that it is important to clarify what is meant by a major strengthening of the SOC and claims that if a substantial number of people experience a given mode of therapy and improve their SOC score by five points on the average *"this is not to be sneezed at"* (Antonovsky, 1996b, p. 176). Moreover, he also suggests that practitioners can arrange for SOC- enhancing experiences and he writes, *"this would be*

true for any therapeutic mode that facilitates a long-lasting, consistent change in real life experiences that people undergo" (Antonovsky, 1987, p. 126).

Health and Well-being: In or Off Key?

One of Antonovsky's deviations from pathogenesis was to reject the dichotomization into categories of sick or well. Through extensive use of statistics, he argued that it is very rare indeed to be completely healthy (Antonovsky, 1979). We are rather all more or less ill or well at any given point in time—located on a health ease-dis/ease continuum from maximally ill (dis/ease pole of continuum) to maximally well (ease pole of continuum). The important point is to focus on what moves an individual toward the ease pole of the continuum, regardless of where he/she was initially located. This is the process of salutogenesis (Antonovsky, 1979, preface xiv–xv):

> "...I am persuaded that the salutogenic orientation, that thinking in terms of the mystery of movement toward the ease pole of the ease-dis/ease continuum, is a significant and radically different approach to the study of health and illness than the pathogenic orientation."

What lies at the ease pole of the continuum is a question we will return to later. However, before moving on we will linger a bit on Antonovsky's writings on illness and disease, and on whether or not it is ok to study illness within the salutogenic paradigm. While Antonovsky stated that his thinking is greatly indebted to Dubos' work on adaptive capacity and adaptive coping, he nevertheless criticized Dubos for not going explicitly beyond the concept of multiple causation of specific diseases, though Dubos claimed this to be his main agenda. Antonovsky stated however (Antonovsky, 1972, p. 538): *"...his (Dubos') focus on adaptive capacity is certainly congenial to the concept of breakdown."* It seems as though Antonovsky introduced the term breakdown to have a phrasing for the process of departing (Antonovsky, 1972, p. 537): *"from the social norm we call health."* Whether Antonovsky meant by this that breakdown will result in various kinds of diseases and thus be, in fact, nearly synonymous with disease, or that breakdown is merely a description of the subjective experience of not feeling well (being ill)—and thus a movement toward dis/ease, is unclear. In outlining the salutogenic philosophy of life Antonovsky claimed that entropy is the norm and that experiences of disease and illness are to be considered requisite to the human condition. Illness, being the subjective experience of not feeling well is thus a larger and a more holistic experience than a specific disease, is it not? Inferring, one can indeed experience dis/ease and or illness without being diagnosed with a disease. Breakdown may or may not include having a

particular disease, but will it not always include experiences of dis/ease and illness?

Despite Antonovsky's intention of going beyond the dichotomy of healthy/sick in the pathogenic paradigm, it is as though he remained within the paradigm when using the terms illness and disease interchangeably. Did he mean that the movement toward the ease pole is a salutogenic movement, whereas the movement toward the dis/ease pole is a pathogenic one (Antonovsky, 1979, p. 69):

> "Inevitably, both because I have been conditioned as well as everyone else by the question of pathogenesis and because the overwhelming part of the data available asks this question, I too shall slip into asking, Why are people located on—or why do they move down toward the dis/ease end of the continuum? I shall seek to avoid doing so and ask the reader to join me in this effort."

Alternatively, did he find it worthwhile and relevant to study movements toward the dis/ease pole of the ease-dis/ease continuum *within* the salutogenic orientation (Antonovsky, 1979, p. 37): *"Salutogenesis asks, what are the factors pushing this person towards this end or towards that end of the continuum."* Engaging in this effort has perhaps nothing to do with pathogenesis as such. Maybe it is of import for understanding health-promoting processes. As apparent from the two quotations above Antonovsky seemed unclear and to contradict himself on this. Taking Antonovsky's own critique of Dubos into account, it is tempting to root for breakdown being the salutogenic paradigm's counterpart to disease in the pathogenic paradigm; namely the subjective experience of being ill, including periods of having diseases in a pathogenic sense. However, this remains unclear in Antonovsky's own texts, and there are examples in the literature of different interpretations of his writings on this topic.

A second deviation from the pathogenic orientation was the rejection of the medical expert as the judge of who is sick or well, through the focus on disease and diagnosis. Such an approach, Antonovsky stated (1979, p. 36): *"blinds us to the subjective interpretation of the state of affairs of the person who is ill"*. In the health ease-dis/ease continuum, we find this expressed in the slash in dis/ease: dis/ease infers the subjective experience of illness, possibly including periods of being sick and diagnosed in the pathogenic sense. This is also evident from the operationalization of health that is found in Fig. 4.1, which clearly demonstrates that Antonovsky advocated for a health concept that included subjective judgment. Thus, to understand health in the salutogenic paradigm we seem to need to define illness explicitly and differently than being sick because of diagnosis. Given the focus on subjective interpretation of health and a movement in a positive direction, it could easily (and mistakenly) be assumed that Antonovsky was a proponent for the concept of *positive health*. Quite opposite to this, he

stated that (1979, p. 52): *"the resemblance between the focus on positive health and the problem of salutogenesis is quite superficial."* He strongly opposed the WHO definition of health that states, *"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"* (WHO, 1948). Antonovsky gave several reasons for his opposition to this definition of health: it cannot be operationalized and therefore cannot be measured, it is too optimistic without dynamic reference to the struggles of life, and most importantly: it opens up for *"medical imperialism"* (Antonovsky, 1979, p. 53). This is a point Antonovsky felt strongly about (1979, pp. 53–54):

> *"Whatever the powers that be do not like enters the proper sphere of medicine: political dissent, whatever the social system, has led to locking people up "for their own good"; and sex education, family planning and abortion, divorce and homosexuality, along with underachievers and overachievers, dropouts and jocks and grinds—all these and many more fall within the province of health with the blessings of WHO."*

The skepticism to WHO's broad health concept that necessitates value judgment (including social and mental well-being in the wider sense) made Antonovsky advocate for a more precise definition of health. A more limited definition of health would be measurable and therefore useful in empirical research, and not less importantly limit the scope of the "proper sphere of medicine" and the possibilities of the power abuse which history warns us about. His operationalization of the health ease-dis/ease continuum (Fig. 4.1) demonstrates this wish for a rather precise definition of health, avoiding the imprecision of a positive dimension. A closer look at this figure reveals that a maximum state of health according to Antonovsky is a score of 1 on each of the components (1-1-1-1): no pain (by subjective judgment), no functional limitation (by subjective judgment), no medically defined condition (by health authority judgment), and no treatment needed (by health authority judgment). This is a negative definition of health, in that it is based on absence of certain characteristics—it is not more than "the absence of disease or infirmity."

However, still in 1979, he made one interesting comment on what can potentially be found at the maximum ease pole of the health ease-dis/ease continuum. He acknowledges that this continuum seems to formulate the most desirable health category in negative terms. And he opens for a possibility of going beyond the negative even if he does not take great interest in this himself, because *"the salutogenic orientation is not concerned primarily with explaining how people reach perfect health - at best, a heuristic notion"* (Antonovsky, 1979, p. 67) and continues:

> *"Yet it may be valuable, if we are to study really healthy people, few as they are, to have some way of identifying them beyond the 1-1-1-1 category. To this end, I would propose an additional question, to be asked after the first four questions have been*

answered with the first alternative in each case: *"You have said that your state of health is not painful and imposes no limitations. The doctor's report gives you a clean bill of health. But these are negative things. Would you say that your state of health goes beyond this, that you feel an abundance of energy, that you are what people call a picture of perfect health?"*

Did Antonovsky stick to this understanding of health throughout his authorship, or did his view develop after these early statements in 1979? As late as in 1995 (in a paper published a few months after his death), he repeated the arguments from 1979, warning against a value-based definition of health. In this paper, he used Nazi doctors as an example of how alleged deviants were tortured not only for the sake of other peoples' health, but sometimes even for their own good. He wrote about his wish for research that would define health relatively narrowly and *"far from coextensively with all of well-being or happiness"* (Antonovsky, 1995, p. 10). He believed this was vital to avoid blurring the line between SOC and health, to distinguish health from other aspects of well-being, and to protect against using salutogenesis to pressure people to live moral lives. He warned against the danger of assuming that *"the morally good is salutary"* (ibid, p. 11). The morally good might be quite the opposite of salutary, as in the sacrifice of one's own health for the good of others. Moreover, the salutary might be morally repugnant, as in the case of persons who harm others, with the help of their strong SOC. He pointed out, however, that he often found himself in a bind as a teacher of medical students. In spite of his above-mentioned arguments, he thought (Antonovsky, 1979, p. 67): *"it is crucial that they learn to see health in a broad context going far beyond the physiological level."* He emphasized that seeing health in a broad context entailed moving beyond a post Cartesian dualism and taking into account fantasy, love, playing, meaning, will and the social structures that promotes these (Antonovsky, 1987).

Antonovsky did write about well-being. However, he warned about confusing well-being with the definition of health (Antonovsky, 1979, p. 197):

> *"I have insisted that the health ease-dis/ease continuum is not to be regarded as coextensive with the entire realm of well-being. Other ease-dis/ease continua exist (…) a nod has (then) been made in their direction; they are highly relevant to and intertwined with health, but they are distinct (…) If our interest are in understanding health, then location on the family-relations or social-relations or material-resources ease-dis/ease continua can usefully be viewed as a GRR."*

One possible interpretation of this is that Antonovsky was of the opinion that only physiological health was captured under the health ease-dis/ease continuum and part of his operationalization thereof. He warned against dangers related to classifying mental and social well-being as elements of health, as that would open up for medical imperialism. However, he was positive to the concept of well-

being as something wider (*"the entire realm of well-being"*), of which health as he defined it was only one dimension. That could be why he so often specified it as the *health* ease-dis/ease continuum—other continua exist. Regarding social well-being, Antonovsky seems quite willing to classify a variety of social ease-dis/ease continua as GRRs, for instance for family relations and social relations (see quotation above, 1979, p. 197).

When it came to mental health, however, Antonovsky contradicted himself, and admitted to it. He wrote (Antonovsky 1985, p. 274):

> *"Mental health, as I conceive it, refers to the location, at any point in the life cycle, of a person on a continuum which ranges from excruciating emotional pain and total psychological malfunctioning at one extreme to a full, vibrant sense of psychological wellbeing at the other".*

Antonovsky describes the movement on the continuum toward better mental health as shifting, and continues:

> *"...from the use of unconscious psychological defense mechanisms toward the use of conscious coping mechanisms...from the rigidity of defensive structures to the capacity for constant and creative inner readjustment and growth...from a waste of emotional energy toward its productive use...from emotional suffering toward joy...from narcissism toward giving of oneself...from exploitation of others toward reciprocal interaction".*

Later he commented on himself that this was a value-based definition (Antonovsky, 1995, p. 9):

> *"I have made an attempt in print to formally define mental health (...). Was I not, by definition, requiring that to be mentally healthy, a person be someone whom I (or even most others) liked, respected, admired?"*

While Antonovsky's treatment of the concept of health is extensive and at times bewildering, it seems safe to conclude that his main messages remained the same throughout his authorship. Health is part of a larger realm of well-being. Health is best understood as a continuum, not as a dichotomy. Health must be narrowly defined to facilitate for empirical research and to avoid value-based definitions that might open up for the abuse of power. Further, although unclear, he

seemed to believe that salutogenesis is about focusing on the movement toward the ease pole of the health ease-dis/ease continuum—regardless of how far into the positive that continuum might stretch. While advocating a narrow physiological definition of health when debating health and moral, in other texts he broadens the scope and writes (Antonovsky, 1996a, p. 13): *"It (the SMH) is, however, not a theory which focuses on 'keeping people "well"'. Rather, (...) it is a theory of the health of that complex system, the human being"*, indicating an ecological understanding of health. This understanding is apparent also in citations as the following (Antonovsky 1994, p. 10):

> *"The study of the macrosocial is essential to understanding movement toward health ... (but) a sensitivity to the macrosocial is only a point of departure. What is required is a systematic framework within which structural sources of health can be understood".*

These quotations make us leave the presentation of health and well-being on a somewhat uncertain and off-key note. Nevertheless, the very same statements demonstrate that the SMH and Antonovsky were in tune with the core values of health promotion.

Harmonizing: SMH's Relevance for Health Promotion

In *Unraveling the mystery of health,* Antonovsky starts with a detailed and explicit explanation of why he is persuaded that the salutogenic orientation is a radically different approach than the pathogenic orientation. Through six different aspects, he illustrates the distinction between salutogenesis and pathogenesis as he sees it (Fig. 4.4). He claims these aspects have implications for research, for understanding health and illness, and for clinical practice. Antonovsky's fundamental philosophical assumption is that all human beings are in the river of life. Nobody stays on the shore. Much of the river is polluted, literally and figuratively. There are forks in the river that leads to gentle streams or to dangerous rapids and whirlpools and the

Fig. 4.4 A summary of six main aspects of the salutogenic and the pathogenic orientation as presented by Antonovsky in Unravelling the Mystery of Health (Antonovsky, 1987). The authors' illustration

SALUTOGENIC ORIENTATION	PATHOGENIC ORIENTATION
Heterostasis	Homeostasis
1. Health ease - dis/ease continuum	1. Healthy/sick dicotomy
2. The history of the person	2. The person's disease/diagnosis
3. Salutary factors	3. Risk factors
4. Stressors and tension might be pathogenic, neutral or salutary	4. Stress is pathogenic
5. Active adaptation	5. The magic bullet
6. The "deviant" case	6. Hypothesis confirmation

crucial questions is *"What shapes one's ability to swim well?"* (Antonovsky, 1987, p. 90). This metaphor illustrates that heterostasis and not homeostasis is *the* prototypical characteristic of the living organism. The daily structures in which we are all embedded are unavoidably and unendingly stressful.

The first aspect Antonovsky asserts as important to health promotion is understanding health as a continuum, and not as a dichotomy between sick and healthy people. He emphasises that in order to explain health one will have to study the movement toward the ease pole of the health ease/dis-ease continuum. His focus is on the dynamic interaction between health-promoting factors and stressors in human life, and on how people may move to the healthy end of the health ease - dis/ease continuum. A sense of coherence is proposed to be the significant variable in effecting this movement (Antonovsky 1985).

The second aspect is to focus on people's own story and not only the diagnosis. He emphasises that to listen to a person's own story (Antonovsky, 1987, p. 5):

> *"…it does not guarantee problem solution of the complex circularities of people's lives, but at the very least it leads to a more profound understanding and knowledge, a prerequisite for moving toward the healthy end of the continuum."*

Further in the third aspect he underscores the importance of salutary factors when focusing on promoting movement toward better health, his claim being that salutary factors contribute directly to health (Antonovsky, 1996a, p. 14):.

> *"Posing the salutogenic question, namely, 'how can we understand movement of people in the direction of the health end of the continuum?'—note all people, wherever they are at any given time, from the terminal patient to the vigorous adolescent—we cannot be content with answer limited to 'by being low on risk factors'… To answer the question requires another neologism: **salutary** factors. I will not quarrel with 'health-promoting' factors or any other term, as long as the concept is clear: factors which are negentropic, actively promote health, rather than just being low on risk factors."*

Health is thus, according to Antonovsky, much more than being low on risk factors. In the fourth aspect, he explains the view on stress and claims that stress might be pathogenic, neutral, or salutogenic. Because stress is ubiquitous, salutogenesis opens up for the rehabilitation of stressors in human life. The fifth aspect is related to the view on therapy. In salutogenesis, the ideal in therapy is the person's (he does not use the word patient) ability to actively adapt and not the magic bullet meaning that based on the right diagnosis you search to find the right cure as in medication or surgery. To underline the significance of active adaptation as ideal in therapy he writes (Antonovsky, 1987, p. 9):

> *"When one searches for effective adaptation of the organism, one can move beyond post-Cartesian dualism and look to imagination, love, play, meaning, will, and the social structures that foster them."*

The last and sixth aspect is about the focus in research and Antonovsky asks whether we are looking for the *deviant case* or *hypothesis confirmation*. He uses an example to illustrate his point: a confirmed hypothesis is that depression is predictive of cancer mortality. However, the difference between the depressed and nondepressed that died of cancer is respectively 7.1 % and 3.4 %, inferring that the great majority did not die of cancer and this is the deviant case. Consequently, he claims, it is possible to generate hypotheses to explain salutogenesis (Antonovsky, 1987).

In a paper from 1996, he argued that the salutogenic orientation can be a basis for health promotion, and in being so, it (Antonovsky, 1996a, p. 14): *"directs both research and action efforts to encompass all persons, wherever they are on the continuum, and to focus on salutary factors."* A third weighty inference of embracing a salutogenic orientation in health promotion, he continued, is the orientations' focus on the history of the person and not on the persons' diagnosis and disease. He claims this to be a moral stance, and it to be (ibid.): *"impermissible to identify a rich, complex human being with a particular pathology, disability or characteristic."* Whereas those working within the pathogenic orientation are pressured to forget the complexity of the human being, the health promoter is, and should be, pressured to relate to all aspects of the person (or collective) to help him/her move toward the ease end of the continuum. Consequently this issue is not only moral it is also scientific (Antonovsky, 1996a). Antonovsky firmly asserted that a salutogenic orientation offers direction and focus for health promotion, and he stated that the salutogenic model could be a foundation for the development of a theory that will be productive in this specific field (Antonovsky, 1996a, p. 18): *"The salutogenic model, I believe, is useful for all fields of health care. In its very spirit, however, it is particularly appropriate to health promotion."*

Conclusions

Diving into Antonovsky's writings, trying to provide an overview of his salutogenic model of health has been not only challenging, but also utterly worthwhile. Overall, it has been an interesting, and for most parts, salutary learning process. We feel safe and supported by Antonovsky when we urge you all to keep reflecting, researching, and further developing the SMH. Antonovsky claims that one of the advantages of the model is just that, that it allows us, indeed even stimulates us, to ask questions, whatever the answers turn out to be.

We want to wrap this chapter up the way we started, with Antonovsky's own words (1987, preface xvii):

> *"If I have been motivated by one purpose to write this volume, it is to reinforce those who are already at work—to spark ideas in the minds of those colleagues who share with me the enchantment with the mystery of health."*

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Shifra Sagy

Aaron Antonovsky was my mentor in the long journey of writing my doctoral dissertation, which was the first to be written in the framework of the salutogenic paradigm. He was not only my advisor in the academic research, but also had a tremendous impact on my life. For me, the salutogenic model is not only a theoretical paradigm whose genesis I witnessed and later on took an active part in its development. For me, this theory is the basis for a meaningful understanding of my lifestory, a story which has been embedded in the conflictual Jewish existence in Israel. Aaron and his salutogenic ideas have guided me in this difficult path too.

Aaron Antonovsky enriched us with a unique, challenging model, which had high levels of comprehensibility, manageability, and especially meaningfulness. When he passed away, 20 years ago, I wondered whether, and perhaps how, the model would be developed after him. Therefore, I am so deeply excited and enthusiastic to take part in this endeavor of the "Handbook of Salutogenesis" and especially pleased to edit this Part dealing with the era after him.

It was very tempting to continue Antonovsky's way by using his guidelines for salutogenic research (Antonovsky, 1996) and especially his concept of "sense of coherence" — the SOC—as the primary answer for salutogenic questions. However, Aaron also taught me that "it is wise to see models, theories, constructs, hypotheses, and even ideas as heuristic devices, not only truths" (Antonovsky, 1996, p. 246). The chapters included in this Part represent good examples of this direction.

Chapter 6, written by Mittelmark, Bull, and Bouwman, focuses on some ideas which are examples of departures from traditional risk factor thinking. The models described

in this chapter were not aimed at continuing Antonovsky's model as a theory, but, it seems that the salutogenic paradigm has provided a useful foundation for these developments. This is quite clear in the Assets model in health promotion as well as in the Health Development Model. The other models described in this chapter (e.g., Fortigenesis, the Margins of Resources Model, the Self-Tuning Model of Self-Care, Positive Deviance Approach) are other examples of the impact of salutogenic thinking, although in different directions. Perhaps it is the zeitgeist in health research that salutogenesis had been created which enabled these later developments.

The next two Chapters (7 and 8) are aimed at broadening our understanding of the salutogenic model by focusing on the important issue of resources. Idan, Eriksson, and Al-Yagon (Chap. 7) review and integrate conceptual and empirical research on the role of Generalized Resistance Resources (GRRs) within the salutogenic model. In particular, this chapter discusses findings regarding the conceptual and empirical progress in the study of GRRs at the individual, family, community, and ecological levels, which might enable us to understand individual differences in sense of coherence (SOC). Whereas this chapter focuses on the role of the GRRs in investigating SOC, the following chapter (Chap. 8) by Mittelmark, Bull, Daniel, and Urke focuses on the Specific Resistance Resources (SRRs) and discusses conceptual and concrete differences between generalized and specific resistance resources in the salutogenic model. This is important to health promotion research and practice, because the means by which these different types of resources are strengthened are dissimilar. The authors stress the importance of distinguishing between the two types of resistance resources, to ensure that health promotion pays balanced attention to both types. Generalized resistance resources arise from the cultural, social, and environmental conditions of living, and early childhood rearing and socialization experiences, in addition to idiosyncratic factors and chance, while the specific resistance resources are optimized

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by societal action in which health promotion has a contributing role. Taken together, this examination of both types of resources may provide a comprehensive understanding of the salutogenic model and the health promotion process.

The last two chapters in this section bring salutogenesis beyond health issues towards other areas of research. In Chapter 9, Joseph and Sagy attempt to integrate two paradigms—positive psychology and salutogenesis—and to suggest a joint conceptual framework which they term as "salutogenic positive psychology." Despite the differences between the two movements, and their different theoretical roots, we believe that the integrative approach has stronger explanatory power in promoting mental health and well-being.

In Chapter 10, Sagy and Mana wish to broaden the scope of the salutogenic paradigm into an interdisciplinary framework and to include other social concepts in its research. As one example of such interdisciplinary research, we review the new studies that investigate intergroup relations. By relating to such areas of research, we try to ask not only "who copes successfully and stays healthy?" but other salutogenic questions as well, such as, "who expresses more openness to the "other"?" I deeply believe that this meaningful question, stemming from our political and social reality, should also be discussed in the framework of salutogenesis.

Elsewhere in this handbook (Chap. 3, Antonovsky & Sagy) we wrote that Aaron taught us that the most meaningful advancement in scientific work is to ask good questions. I trust that this Part of the Handbook relates well to this challenge, and end, how else, with Aaron's words, as he used to tell me at the end of our work meetings: "Let's start working; there is a lot of work to be done."

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Emerging Ideas Relevant to the Salutogenic Model of Health

Maurice B. Mittelmark, Torill Bull, and Laura Bouwman

Introduction

What were Antonovsky's ambitions for salutogenesis research? Fortunately, he had a penchant for writing about his 'thinking about his thinking,' which greatly enlivened his books and many published articles. Three late papers in particular tell us something of his ambitions for salutogenesis research.

In the first paper, Antonovsky took an explicitly future perspective on the sense of coherence (Antonovsky, 1996a). He called for robust research on the measurement of the sense of coherence, with other methodological approaches than his own survey research approach that yielded the Orientation to Life Questionnaire (OLQ). He called for the development of measures of the three components of the sense of coherence, noting the OLQ's stubborn single factor structure. Antonovsky identified as a priority research on the relationship of the sense of coherence to social class and sex. He also noted that, almost without exception, sense of coherence studies had been carried out with samples of European origin, and that its cross-cultural validity beyond Eurocentric cultures needed testing. He was deeply interested in the search for the sources of the sense of coherence, especially in the social structure of people's lives. He championed further research on the idea of collective sense of coherence, which he thought to be a "most problematic" concept meriting *"very hard work"* (ibid., p. 177). Highest on his agenda for future research were three issues. How does a strong, stable sense of coherence come into being? Is

major change in the sense of coherence unlikely after early adulthood? Can one speak of/study collective sense of coherence?

In the second paper, based on a presentation at a World Health Organization (WHO) workshop in Copenhagen in 1992, Antonovsky called for further research on the sense of coherence as a buffer (moderator) versus a direct determinant of health, and on the linearity/nonlinearity of the relationship between sense of coherence and health (Antonovsky, 1996b). He suggested research on the sense of coherence relationship to well-being (distinct from health as he defined it) and the comparison of the sense of coherence relationships to emotional well-being and to physical well-being. He called for basic research on the mechanisms linking the sense of coherence and health. Along with these lines of research in which the sense of coherence would be positioned as an independent variable, he called for intervention research in which the sense of coherence would be treated as a dependent variable. He suggested the development of programmes designed to strengthen the sense of coherence, and to prevent the weakening of the sense of coherence of people cared for in institutions. Perhaps of most significance to the field of health promotion, Antonovsky used the occasion of his presentation to the WHO to voice his concern that *"the basic flaw of the field is that it has no theory. . . the salutogenic model, I believe . . . is particularly appropriate to health promotion."* (ibid., p. 18).

In the third paper, published a few months after his death, Antonovsky wrote about his wish for research that would define health relatively narrowly and *"far from coextensively with all of well-being or happiness"* (Antonovsky, 1995, p. 10). He believed this was vital to avoid blurring the line between the sense of coherence and health, to distinguish health from other aspects of well-being, and to protect against using salutogenesis to pressure people to live moral lives. He warned against the danger of assuming that *"the morally good is salutary"* (ibid., p. 11). The morally good,

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might in fact, be quite the opposite of salutary, as in the sacrifice of one's own health for the good of others. And the salutary might be morally repugnant, as in the case of persons who harm others, with the help of their strong sense of coherence.

By the end of his life, Antonovsky had achieved the highly enviable. He had produced a coherent and important theory of health that was a clear departure from the mainstream biomedical model of health. He had influenced many hundreds of other researchers to take the salutogenic orientation to health research. His scholarship spawned many questions of significance for the further development of his idea of salutogenesis.

Now we turn to the main subject of this chapter, theory developments related to the salutogenic model of health in the era after Antonovsky. The term salutogenic model of health is used here with precision, distinct from the looser salutogenic orientation (see Chap. 2). The explication of the salutogenic model of health in *Health, Stress, and Coping* and of the sense of coherence in *Unraveling the Mystery of Health* were the result of Antonovsky's salutogenic orientation, but no pair of these three terms is synonymous. Today, the salutogenic orientation is often used as an umbrella term, with the emphasis placed on the idea of "assets for health," which are represented in the salutogenic model of health by the concept generalized resistance resources (Lindström & Eriksson, 2010). The salutogenic orientation calls for researchers to turn from a disease and risk factor orientation, in which people have problems and needs, to the salutogenic orientation, in which people are seen as having the potential and capacity to control their own health and well-being. The salutogenic orientation has place for an extraordinarily wide range of constructs, well beyond the generalized resistance resources, generalized resistance deficits, sense of coherence and ease/disease anchors of the salutogenic model of health. Antonovsky himself had interest in many ideas about health that went beyond his theorizing about the salutogenic model of health and the sense of coherence. He wrote about "salutogenic strengths" and about one class of strengths he termed *"generalized personality orientations"* that included self-efficacy, locus of control, hardiness, . . .and the sense of coherence (Antonovsky, 1991, p. 70).

To return to Antonovsky's concern that the field of health promotion has no theory, he was not alone in this worry, expressed straightforwardly by Frolich and Potvin (1999): health promotion needs to "*move beyond the traditional theories used in health education such as Bandura's social cognitive theory, Ajzen and Fishbein's Theory of Reasoned Action and the Health Belief Model of Becker*" (ibid., p. 211). By "move beyond" they meant a repositioning of health promotion away from risk factors like tobacco use, to social and structural forces on health, and to "salutary" factors like education. They crystallized their argument

with a call for health promotion to foster salutogenic settings—environments in which no particular individuals, target groups, risk factors, or diseases are in focus. Rather, the salutogenic setting is a place where the physical and social arrangements support health in its general sense, supported by policies, at all societal levels, that value health. Their call, in short, was for health promotion to adopt the salutogenic orientation, imaginably as a step on a path to the adoption of the salutogenic model of health as the theory for health promotion. This Handbook is a progress report; where is health promotion (and other academic fields) in relation to the salutogenic orientation? The span of this chapter is narrowed to theory developments stimulated by the salutogenic model of health (with one exception, a discussion of "positive deviance" at the end of the chapter). Yet the dividing line between developments in the salutogenic orientation and the salutogenic model of health is not distinct. That is due partly to a dearth of academic writing in which there is a clear focus on a critique of the salutogenic model of health. Writings about the salutogenic model of health have been mostly scholarly summaries about bits of the salutogenic model of health, such as the conceptualization and measurement of the sense of coherence, and its relationship to various health outcomes. In the sections that follow, we present briefly some advances having relevance for the further development of the salutogenic model of health in its fuller sense.

The Health Development Model

Antonovsky posited salutogenesis as distinct from and yet complementary to pathogenesis as concepts useful in characterizing the human experiences of health (ease/disease) and of illness (sick/well). Yet health promotion models that explicitly address this complementarity are rare. An important advance in this regard is the Health Development Model (Fig. 6.1), which is meant as a framework for the development of research indicators to monitor the effects of health promotion interventions (Bauer, Davies, Pelikan, & the EUPHID Theory Working Group, 2006).

The starting point was dissatisfaction in the health promotion community with the European Community (EC) project *European Community Health Indicators* (Kramers, 2003). This project focussed mostly on indicators relevant to disease prevention and neglected health promotion. To address the gap, the European Health Promotion Indicator Development project (EUHPID) received funding from the EC to focus more particularly on the health promotion part. The result, the Health Development Model, integrates the pathogenic and salutogenic orientations, showing how disease prevention and health promotion perspectives complement each

Fig. 6.1 The health development model
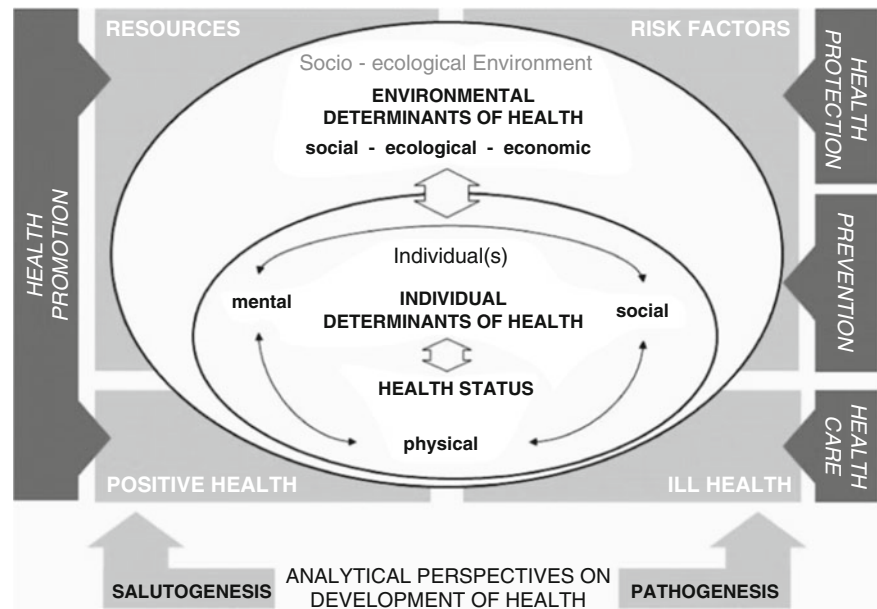
other. The Health Development Model has three major objectives (Bauer et al., 2006, p. 154):

> "To provide a clear rationale for selecting, organizing and interpreting health promotion indicators (classification system);
>   To communicate the unique health promotion approach to the larger public health community (advocacy tool); and
>   To develop a common frame of reference for the fields of health promotion and public health which shows their interrelationship (dialogue tool)."

Salutogenesis is explicit in the model as an analytical approach and is specified through health promotion, being oriented towards resources and positive health, as demonstrated in the left part of Fig. 6.1. The pathogenic approach works through protection, prevention, and care, being risk factor and ill-health-oriented (right part of the Model). However, both analytical perspectives work toward the same center: the health of the individual in the context of her environment. Bauer and colleagues (2006) emphasize that while the analytical perspectives of salutogenesis and pathogenesis differ, the approaches often overlap in practice and are implemented in combination. However, linking these as two distinct analytical perspectives, as the Model does, raises consciousness about their distinctiveness. This also serves the Model's purpose, which is to raise awareness that health promotion indicators are needed also on the "salutogenic side," in addition to the disease and risk factor indicators which predominate in health research.

How closely does the Model follow Antonovsky? An interesting aspect of the Model is its use of the terms "positive health" and "ill-health," neither of which are consistent with Antonovsky's preferred terminology: ease/disease (rather than positive health), and healthy/sick in nonpatients and diseased/not diseased in patients (rather than ill-health) (Antonovsky, 1979, p. 41; Mittelmark & Bull, 2013). This illustrates a characteristic of much of the salutogenesis

literature, which tends to eschew Antonovsky's preferred terminology. Antonovsky's main argument against including well-being—and health as more than absence of disease—into the health concept was that the lack of precision in a value-laden positive health concept would place too much power into the hands of the institutions and the health elite (Antonovsky, 1979, pp. 53–54). Antonovsky gives examples of how deviations can be culturally defined and deemed amenable to "treatment,", for instance during the wartime Nazi regime. The Health Development Model, however, overcomes this potential danger by placing illness, prevention, and treatment within the pathogenic part of the model, leaving positive health outside the agenda of the healthcare system. Contemporary health promotion researchers have integrated the positive health concept into salutogenic thinking. Antonovsky (1996a, 1996b) was open to this, even if he was not interested in pursuing such research personally. Given the considerable shift of attention towards positive health, also within salutogenesis research, Mittelmark and Bull (2013) argue that it is time to include positive conceptualizations of health into the salutogenic model of health, not just conceptually but also operationally. The Health Development Model is a large stride in that direction.

Asset Models in Health Promotion

A major contribution of the Health Development Model is that it positions salutogenesis alongside pathogenesis. Morgan and Ziglio (2007) have similar ambitions for salutogenesis, using it as one of three building blocks in their Asset Model of public health (Fig. 6.2). The other two building blocks of the Asset Model are the use of *assets*

indicators in public health evaluation, and *assets mapping* as a key step in implementing policies that promote health. The aim here is not to review the Asset Model in its entirety, but rather to point out how it is an extension of the salutogenic model of health and how it builds on salutogenesis concepts. Nevertheless, a brief tour of the Assets Model is useful to set the stage for the main discussion. The Asset Model's starting point is the conclusion that current public health approaches (pathogenesis-inspired and risk factor-oriented) are failing to reduce social inequalities in health. This calls for public health to rethink *"the theoretical basis on which the public health evidence base is built"* (ibid., p. 19). The key questions change from *"what are the risk factors for disease and how can we prevent them*?" to *"what are the key assets for health and how can they be used to reduce health inequalities*?" This is a call for the development of an evidence base on what assets-based actions are effective in promoting health.

Morgan and Ziglio's pie-chart depiction of the Asset Model shown in Fig. 6.2 illustrates how the three building blocks interrelate. The first slice of the Model is "Theory of salutogenesis," calling for public health actors to create the needed evidence base. The second slice is action-oriented, calling for a mapping of existing resources of communities and persons in public health initiatives. Building on Kretzman and McKnight (1993), Morgan and Ziglio (2007) discuss the benefits of this approach, stating that:

- it opens possibilities for action even if public resources are scarce,
- it focuses on human dignity though not classifying large groups as merely resource poor, vulnerable, and needy, and
- it contributes to empowerment processes through local influence and ownership of programmes and activities.

The third slice of the Model focuses on evaluation. Morgan and Ziglio (2007) call for evaluation that includes assets-based public health indicators, emphasizing the importance of opening up for "realistic evaluation." Morgan and Ziglio (2007) borrow an illustration from Whitehead and colleagues (2004), describing how various pieces of evidence must be fitted together to create a "jigsaw" of a fuller picture.

To what degree do Morgan and Ziglio lean on Antonovsky and his salutogenic model of health in their description of the Assets Model? They state explicitly that the Asset Model is based on salutogenesis, using the expression "theory of salutogenesis." It is clear that their focus is on two elements of salutogenesis: (1) the salutogenic question of what generates health as opposed to what generates disease, and (2) a focus on the importance of resources in the creation of health in the context of stressful conditions and events. When describing resources, they use the word assets.
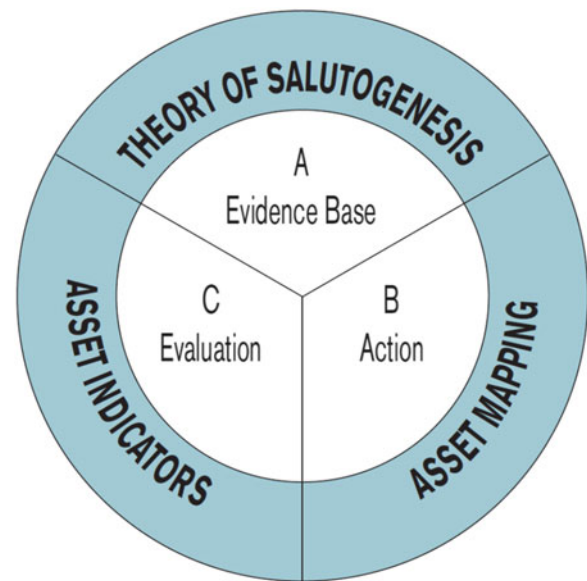
Fig. 6.2 An asset model of public health. Reproduced from Morgan and Ziglio (2007)

Their definition of assets is wide and not contradictory to Antonovsky's conceptualization of generalized resistance resources. They do not mention the construct sense of coherence explicitly, but there is reference to its elements: understanding the world one lives in, a world which is manageable and has meaning, enables individuals to make use of resources to protect and promote their health. There is one point on which Morgan and Ziglio partly deviate from Antonovsky. While Antonovsky himself mostly focused on the individual, not being firmly convinced that the sense of coherence could operate at a community level, Morgan and Ziglio, leaning on Lindström and Eriksson (2005), extend the application of the resource perspective to be applied at group and societal levels in addition to the individual one. This falls into developments in salutogenesis research since the mid-1990s. However, theorizing about the salutogenic model of health and its key elements like generalized resistance resources and the sense of coherence is not part of Morgan and Ziglio's project. Their project might rather be seen as strengthening the salutogenic strand in public health approaches, having much in common with the aim of Health Development Model reviewed earlier.

Margin of Resources Model (MRM)

As a sociologist, Antonovsky was deeply interested in social structural aspects of the salutogenic model of health. A pervasive finding in the literature on the social determinants of health is that of persistent health differentials related to
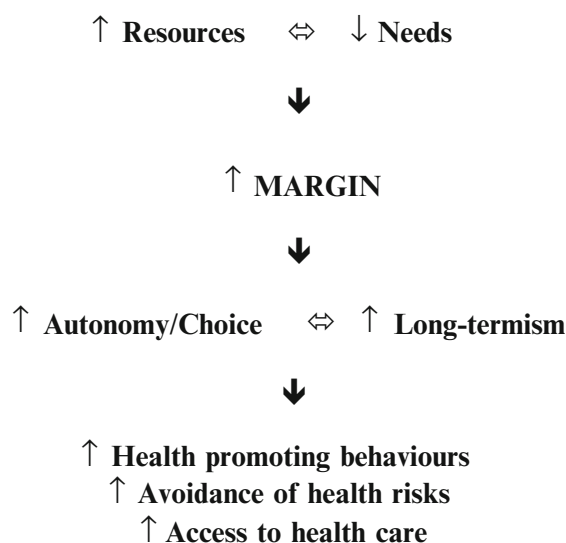
socioeconomic position (SEP), with the relationship between health and SEP being graded all the way up the SEP ladder (Marmot, Friel, Bell, Houweling, & Taylor, 2008). The salutogenic model of health has been used as a launching point to develop an explanation of this phenomenon, called the Margin of Resources Model—MRM (Charlton & White, 1995). The MRM views SEP as a marker for cumulative life experience. Translating the MRM into salutogenic model of health terms, generalized resistance resources are distributed unevenly in a society, of which SEP is a marker. The margin of resource is the gap between the level of generalized resistance resources needed for essential consumption (at the individual or group level) and the generalized resistance resources that are available. Marginal generalized resistance resources are analogous to disposable income. Needs are defined not only as objective necessities for survival, but also socially- and culturally determined needs (aspirations) that are inextricably linked to participation in social life. The MRM posits that aspirations are universal across cultures. The capacity to realize aspirations is constrained by the size of the margin. The margin's size rises with higher SEP in all societies:

> "The size of the margin predicts the degree to which the members of a group can step back from their immediate imperatives and shape their own lives strategically. A long-term view of life is likely to be healthier than one [that] cares only for the present moment. Investment in the future is largely a matter of deferring satisfaction in order to maximise long-term gains, and this strategy is generally good for health." (ibid., p. 238).

The MRM suggests that health can be promoted by increasing the margin, by strengthening resources, by decreasing needs, or by all of these. A potentially very important contribution to the salutogenic model of health is the MRM's concept of "long-termism," as shown in Fig. 6.3.

One can imagine that Antonovsky would have been delighted with the MRM, since it posits a mechanism for a phenomenon that he appreciated, but could not name. Writing about generalized resistance resources–resistance deficits, he craved a measurement tool that would link stressors and resources: *"would that I could coin a single word"!* (Antonovsky, 1987, p. 31). While the MRM does not address explicitly the full scope of the stress concept as Antonovsky appreciated it, the Model's attention to needs—and therefore unmet needs—suggests measurement strategies that might have given Antonovsky the measurement tool he sought.

The MRM suggests how increased differential generalized resistance resources margin may be associated with increased differential health, in a graded manner at all levels in a society, whatever the culture, social arrangements, and living conditions of a particular society.

↑ **Resources**   ⇔   ↓ **Needs**

⬇

↑ **MARGIN**

⬇

↑ **Autonomy/Choice**   ⇔   ↑ **Long-termism**

⬇

↑ **Health promoting behaviours**
↑ **Avoidance of health risks**
↑ **Access to health care**

Fig. 6.3 The margin of resources model (reproduced with permission)

What mechanism might connect the size of the margin with health? One suggestion comes from the field of evolutionary psychology (Cosmides & Tooby, 2013), centered on the idea that human psychology evolved in the hunter-gatherer environment wherein surplus generalized resistance resources did not exist. The mismatch between human psychology and today's environment leads to health differentials (Charlton, 1996). Humankind was designed for hunter-gatherer life when there was little to no surplus of resources, not the characteristic "delayed return" of societies today, in which resource surpluses exist, and more resources seem always to lead to better health.

The social–psychological mechanism is that those with surplus generalized resistance resources will share with those they are close to, and with others having surplus (to maximize the benefits of social exchange). Surplus begets surplus and imparts higher social status, which imparts reproductive advantage. Thus, it is the status-seeking instinct that drives the rise in SEP, which comes from acquiring surplus generalized resistance resources. Health is indirectly enhanced since surplus produces more health, and health in turn imparts reproductive advantage.

This salutogenic psychological mechanism is assumed universal in nature. While this evolutionary psychology explanation is offered in the salutogenic framework as described, no discussion of the sense of coherence is included. Yet it seems one could offer the same evolutionary explanation for the development of a strong sense of coherence. In the complex, chaotic, and dangerous world of the hunter-gatherer, the man or women with a strong sense of coherence would have had early childhood experiences in families that managed scarce resources to maximum

advantage. High sense of coherence would reinforce one's ability to marshal and use generalized resistance resources to meet life's challenges, and the social mechanisms already mentioned would provide the conditions for those having surplus generalized resistance resources to acquire even more surplus. The connection between generalized resistance resources and the sense of coherence is assumed direct. This pattern would be intergenerational, and leads to a question Antonovsky did not pose, as far as we are aware: does strong and weak sense of coherence run in families through generations? It might, since socioeconomic advantage and high achievement do seem to run in families, although this notion is highly controversial (Beenstock, 2012).

Fortigenesis

It was clear from his many writings that Antonovsky hoped salutogenesis would stimulate theoretical developments and the illumination of other answers to the salutogenic question than his own—the sense of coherence. He also hoped researchers would take interest in other forms of well-being than his own interest; the subjective experience of physical health (Antonovsky, 1996a, 1996b). One of the earliest responses was the work of Deodandus Strümpfer and colleagues in South Africa, who broadened salutogenesis to *fortigenesis*, referring to "*the origins of psychological strength in general*" (Strümpfer, 1995), and to strengths in social roles including worker, marriage partner, and parent (Strümpfer, 2006). Fortology (originally Psychofortology) is the study of fortigenesis (Wissing, 2013), and is indistinct from positive psychology; the two terms are used as synonyms, i.e., "positive psychology/fortology" (Strümpfer, 2006, p. 30).

The question is this: is fortigenesis a new theory, a revision or expansion of salutogenesis, or the specification of an additional ease/disease continuum within the salutogenic model of health? The answer does not seem hard to come to. Fortigenesis is an "expansion of salutogenesis into fortigenesis that did not change the rest of the Antonovskian model" (Strümpfer, 2013, p. 13). Fortigenesis is a specification of additional ease/disease continua within the salutogenic model of health—many endpoints related to *psychological strength*. Such developments were anticipated by Antonovsky, whose salutogenic model of health had room for *"Other Ease/Disease Continua"* (Antonovsky, 1979). The range of endpoints embraced by fortigenesis is all-encompassing:

> "*Beyond health, fortigenesis is also likely to contribute to effectiveness with regard to work, family life, friendships, community involvement, spiritual expression, and economic and political functioning. Fortigenesis is thus more embracing than salutogenesis, especially when salus is used in its literal sense of freedom from physical disease.*" (Strümpfer, 2013, p. 9).

If Fortigenesis is a specification of additional ease/disease continua in the salutogenic model of health, is the term fortigenesis superfluous? As even Strümpfer (2013) has noted, the term salutogenesis is the favored term, and recent calls for well-being research using the salutogenic model of health have avoided using the term fortigenesis altogether (Keyes, 2012; Mittelmark & Bull, 2013). Despite a flourished and highly productive tradition of well-being research in South Africa (Wissing, 2013) where the terms fortigenesis and fortology were conceived, it seems the hegemony of Northern Hemisphere science will continue to place the terms salutogenesis and positive psychology in the favored positions.

Tension Management, the Sense of Coherence, and the Self-Tuning Model of Self-Care

Langeland and Vinje and other colleagues use the salutogenic model of health as the foundation for research on talk-therapy for people with mental health problems (Langeland & Vinje, 2013). As the term "foundation" implies, the talk-therapy research is anchored in the salutogenic model of health, coupled with elements from theory and research on flourishing, flow, happiness, recovery processes, and the Self-tuning Model of Self-care (Langeland & Vinje, 2013, p. 306). The aim of the resultant talk-therapy intervention is to:

> "…*increase participants' awareness and confidence in their potential, their internal and external resources, and their ability to use these to increase their SOC, coping, and level of mental health and well-being*".

> (Langeland and Vinje, 2013, p. 307).

The talk-therapy intervention process is illustrated in Table 6.1, in which the salutogenic model of health is the basis for 14 principles that are in turn linked to mental health and well-being outcomes. An example of how the salutogenic model of health is an explicit foundation for the talk-therapy intervention is the utilization of the "stream of life" metaphor. In this way, a core concept of the salutogenic model of health plays out on the therapeutic stage: promoting health cannot be achieved by avoiding all stress and erecting safeguards to keep people from falling into the river of life. We are all *in* the river of life from our first breath, and we have to learn to swim, even if it is strenuous. The core question is, how can we learn to swim well enough to survive—and even thrive—in a river that has dangerous features?

The salutogenic model of health is a foundation for talk-therapy intervention research, augmented by several other salutogenic-oriented health promotion approaches. We illustrate this dynamic by focusing on the salutogenesis point in Table 6.1 and the associated principle "promoting resistance resources, particularly social support and self-identity."

Table 6.1 A mental health promotion process in talk-therapy groups based on the salutogenic model of health

Salutogenesis	Salutogenic therapy principles	Desired outcomes
1. Health as two continua	– Movement toward health	– *Increasing tolerance for various feelings*
	– Universalizing mental health problems	– *Improving active adaptation*
	– Introducing the metaphor of the stream of life	
2. The story of the participant	– Diagnosis as a narrow description	– *Experiencing oneself as a person*
	– Listening to the participant's narrative identity: shedding light on individual coping ability	– *Structuring life experiences that reinforce sense of coherence*
		– *Increasing perception of coping in the narrative identity*
3. Health-promoting (salutary) factors	– Extending coping resources	– *Improving self-identity*
	– Paying attention to what is currently functioning well and asking questions to increase the awareness of resources	– *Increasing perception of the quality of social support such as attachment, social integration, opportunity for nurturing, reassurance of worth, reliable alliance, and guidance*
	– Promoting resistance resources, particularly social support and self-identity	
4. Stress, tension, and strain as potentially health-promoting	– Discussing appropriate challenges	– *Increasing acceptance of one's own potential and coping capability*
	– Universalizing the feelings of tension	– *Experiencing one's resources*
5. Active adaptation	– Promoting a climate of unconditional positive regard, empathy, and genuineness	– *Experiencing motivation for change*
	– Developing participants' unique capacities	– *Thinking more salutogenic and developing positive patterns for health promotion*
	– Developing crucial spheres in human existence	– *Increasing perceptions of comprehensibility, manageability, and meaning; improving SOC*
	– Stimulating flow experiences	– *Increasing emotional, psychological, and social well-being; positive mental health*

From Langeland and Vinje, 2013, p. 309, reproduced with permission

This principle is translated into action with the help of a model that is meant to augment the salutogenic model of health, namely the Self-tuning Model of Self-care (Vinje & Mittelmark, 2006).

Antonovsky was keen to understand the mechanisms by which sense of coherence enabled the efficacious use of generalized resistance resources. He viewed the salutogenic model of health from a systems perspective and wrote about the importance of feedback and course corrections in the process of transforming the potentiality of generalized resistance resources into reality (Antonovsky, 1990, p. 48). Is the process mostly reflexive or more reflective? He certainly opted for reflection, writing about stages of appraisal when a stimulus becomes salient enough in the brain to signal the need for appraisa*l: is it a stressor, or not?*

If it is defined as a stressor, tension is created, "manifested in increased psychophysiological activity and emotion" (ibid., p. 36). This activity and emotion arouses consideration of potential generalized resistance resources (and perhaps specific resistance resources; see the chapter on specific resistance resources elsewhere in this volume). The activation of generalized resistance resources/specific resistance resources may result in coping, resulting in tension dissolution. But what is the nature of the brain's activity and emotion? One emerging answer is "self-tuning," a term

from systems theory. Many machines are designed to engage in self-tuning, to remain within their intended operating range (Strmčnik & Juričić, 2013). A simple example is a machine that has the built-in capacity to slow down or speed up its operating speed to stay within a safe operating temperature range. In the context of coping with stressors, self-tuning is the learned ability to adjust coping responses to avoid extreme outcomes, for example to avoid burnout in the face of extreme work stress. Figure 6.4 shows the self-tuning process as revealed in studies of nurses coping with work-related stress (Vinje & Mittelmark, 2006, 2007, 2008; Vinje, 2007; Bakibinga, Vinje, and Mittelmark, 2012a, 2012b, 2013) and further explored in municipal workers (Vinje & Ausland, 2013).

The empirically grounded Self-tuning Model has its beginning in the research finding that a typically stressful occupation, nursing, is a source both of job engagement, but also of a strong sense of duty. Job engagement, in turn, enriches one's positive experience of meaning in life, zest, and vitality. At the same time, the sense of duty can lead to job-related overload, fatigue, and risk of burnout. As research shows, nurses who experience a strong match between their call in life and their nursing vocation—presumably the case for many if not most nurses—cope by taking deep stock of their situation

Fig. 6.4 The self-tuning model
of self-care
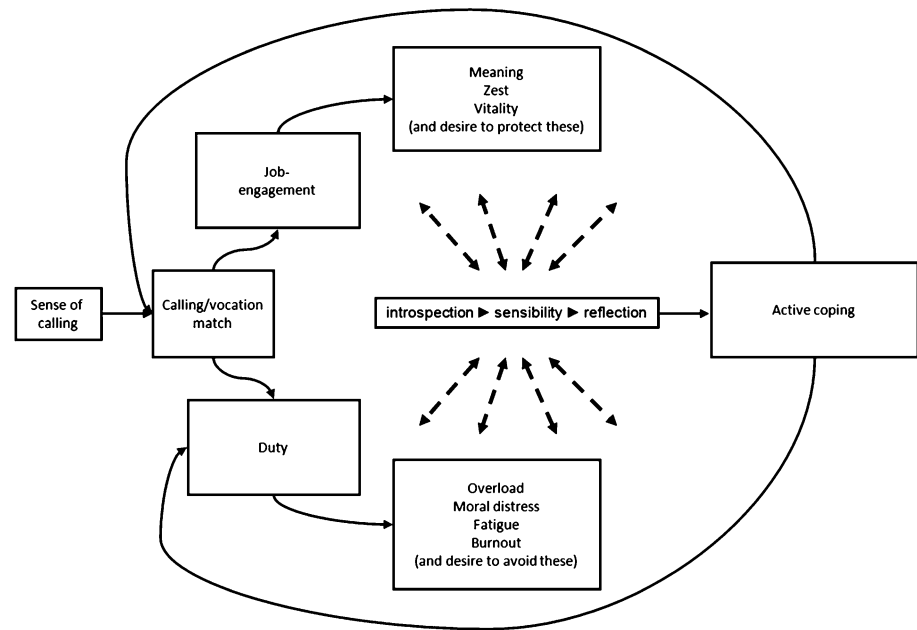
(Vinje & Mittelmark, 2006). This is a complex process rooted in taking time for introspection about meaningfulness in life. This self-examination may enhance one's self-sensitivity and self-awareness and promote reflection about one's life circumstances, motivated by the desire to retain/regain job-related meaning, zest, and vitality and to cope positively to avoid the deleterious effects of a zealous attention to duty. This is the "stimulus" in self-tuning, and when people become adept at it, introspection is habitual in the form of sensibility: the ability to read and interpret one's own physical and emotional signals and signals from one's surroundings (Vinje & Mittelmark, 2006). The positive "response" is to make changes in one's situation and/or in one's self that enhance recovery of well-being.

Self-tuning is taken into talk-therapy by the group facilitator, who explicitly encourages participants to:

> "…engage in self-examination and the contemplation of their own thoughts, feelings, desires, dreams, and the meaningfulness of life (introspection), in addition to comparing this inner comprehension with the outer world, available resources, and the possibilities of living in accordance with it (reflection). Vital to this process is the strengthening of one's sensibility, referring to the participants' self-sensitivity and awareness."

In their research on talk-therapy processes and outcomes, Langeland and Vinje observed that participants were able to engage in self-tuning which "seemed to enhance the participants' health-promoting recovery processes" (Langeland et al., 2007, p. 316).

The Positive Deviance Approach to Social Change

The salutogenic model of health provides an explanatory framework for health development as well as a framework for behavioral and social change. This "double functionality" has not been fully put to use. While a large quantity of evidence suggests the sense of coherence is related to health, well-being, and a healthy life orientation, relatively few studies have applied the salutogenic model of health in the design of action strategies (see important exceptions in the chapters in this Handbook on applications in various settings). The opposite holds for the strongly action-oriented Positive Deviance approach (PD), which in its principles is in close kinship with the salutogenic model of health. While the salutogenic model of health is a strong theoretical formulation, the PD approach was developed directly out of practice. The PD approach is presented in this chapter because of its synergy potential: the salutogenic model of health's action potential is invigorated by PD and PD is more robust when used in the salutogenic model of health framework. The synergy potential is illustrated with an example near the end of the chapter.

Both the salutogenic model of health and the PD approach acknowledge the active role of people in creating health, their crucial role in bringing about change, and that health arises from interplay between people and their context

(van Dick & Scheffel, 2015). PD arose from the observation in public health practice *"that in every community or organization, there are a few individuals or groups whose uncommon but successful behaviors and strategies have enabled them to find better solutions to problems than their neighbors who face the same challenges and barriers and have access to same resources."* (The Positive Deviance Initiative, 2010). These individuals are referred to as positive deviants (Pascale, Sternin, & Sternin, 2010). Since the PD approach emerged in the 1970s it is widely applied to tackle issues of child nutrition, reproductive health, and healthcare services and access (van Dick & Scheffel, 2015). An interesting suggestion for an alternative label for PD is "optimal outlier," since the term "deviance" carries a negative connotation for many (van Dick & Scheffel, 2015).

The PD focus on those who develop solutions is similar to the study of those who deviate from health deterioration that inspires salutogenic thinking. Deviants in both approaches are those who exercise their capacity to move towards the positive—in salutogenic terms "ease"—side of the health continuum.

The PD approach engages with families and communities in action learning processes around locally existing experiences. "PD" represents the practices that positively deviate from a dominant norm, such as the practices of a family with well-nourished children in a community with a high prevalence of stunting. PD practices emerge at multiple levels and include individual skills, family bonding, local organizations' capacities, history, stories, and culture of the community.

With the use of participatory research methods, PD practices are identified and initiatives are developed to facilitate other community members to adopt the practices or adapt them to their own purposes. The design of PD-based programs reported in the scientific and gray literature is diverse and range from pre- and post-test without control to RCTs (for an overview see the systematic review in the area of child malnutrition of Bullen, 2011).

The literature presents different versions of the PD implementation steps. In general these include problem and outcome definition, determination of common practices and existence of positive deviants, discovery of uncommon but successful practices and lastly, the design and implementation of dissemination strategies. In line with the emphasis on the crucial role of people themselves in creating health, the community should have full ownership in all steps. Professionals take on the role of process facilitators.

The insights derived from decades of testing PD-based programs are useful to accelerate the application of salutogenic model of health-based action strategies. In addition to providing examples of program design, the PD literature gives insight about the generalized resistance resources that people apply to face challenges. Marsh, Schroeder,

Dearden, Sternin, and Sternin (2004) provide a short list of PD behaviors and enablers illuminated in studies in the fields of child and maternal health and girl trafficking. In turn, the PD approach may benefit from the multidimensional operationalization of the concept of generalized resistance resources. The current PD approach encourages health-promoting practices, yet does not address root-causes that originate from the broader political, socioeconomic and political context (Sternin, 2002). Generalized resistance resources include resources that originate at a range of levels, from the individual-physical, to interpersonal and macro-sociocultural levels. In addition, the life-course orientation of the salutogenic model of health may further enrich the PD approach by incorporating past, present, and future perspectives on issues and solutions.

Our example illustrates how the use of the salutogenic model of health and PD leads to new insights on the origins of healthy eating practices and potential action strategies. Plenty of evidence is available on multiple risk factors for *un*healthy eating. Yet little is known about the factors and mechanisms that drive healthy eating practices. Tapping into the determinants of success of positive deviants who are coping well with the so-called obesogenic environment is crucial to the design of strategies that enable people to accomplish lifestyle changes in their everyday-life context (van Woerkum & Bouwman, 2014). In a first study, the salutogenic model of health guided a cross-sectional study of generalized resistance resources associated with eating practices in Dutch adults (Swan, Bouwman, Hiddink, Aarts, & Koelen, 2015). Participants with the best eating practices were selected as PDs. Common to virtually all the Dutch is the presence of abundant resources to make "the healthy choice the easy choice" (e.g., healthy food, nutritional education). So, the population is faced with a ubiquitous obesogenic environment, and resources that promote healthy eating. The PDs manage to cope: for many others, the same environment impedes health. Multivariate logistic regression analysis was applied to study the PD's generalized resistance resources. A set of five factors was found to predict PDs healthier eating practices: being female, living with a partner, a strong sense of coherence, flexible restraint of eating and self-efficacy for healthy eating. Factors previously found to predict *un*healthy eating including income, employment status, education level, nutrition knowledge, social support, and affordability, accessibility and availability of healthy food, were not related to healthier eating in this study.

In a fresh study not yet in the literature as of this writing, salutogenic principles and concepts were used to develop the "Food-Life-Story" narrative inquiry methodology to further map out specific enablers which could increase adoption of healthy eating practices. The method fully recognizes the active role of people in constructing their own life and thus,

their eating practices. PDs were selected from an existing research panel using the criteria of high dietary score, no diet-related risk factors, being a woman and living with a partner. Preliminary findings indicate that foresight, determination, and self-reliance were used to counter stressful situations such as time-constraints. Coherent eating habits were supported by the ability to construct life-stability (early or later in life), combined with positive food associations. The findings suggest action strategies that target change beyond food habits, reaching to lifestyle and life perspective.

This raises the idea of a collaborative "PD" stance that could/should be taken by all community actors to focus not only on food-related matters, but also to enhance self-efficacy, family warmth, and stability and community actions to foster positive and healthy food interactions. Current efforts include the study of those who live in disadvantaged circumstances, further testing of the Food-Life-Story methodology and its application to the steps of the PD approach, to unravel practices and the underlying mechanisms that enable healthier eating. The third author is a resource for more information about the examples just presented.

Conclusions

We return to Antonovsky's ambitions for further scholarship on the salutogenic model of health. He called for:

- Robust research on the measurement of the sense of coherence with diverse methods
- The development of measures of the three components of the sense of coherence
- Research on the relationship of the sense of coherence to class and sex
- Sense of coherence studies testing its cross-cultural validity beyond Eurocentric cultures
- A search for the sources of the sense of coherence
- Research on the idea of collective sense of coherence
- Research on how a strong, stable sense of coherence come into being
- Research on the sense of coherence stability/lability after early adulthood
- Research on collective sense of coherence
- The sense of coherence as a buffer versus a direct determinant of health
- The linearity/nonlinearity of the relationship between the sense of coherence and health
- Research on the sense of coherence relationship to well-being
- Intervention research in which the sense of coherence would be treated as a dependent variable

- The development of programmes designed to strengthen the sense of coherence, and to prevent the weakening of the sense of coherence
- Health promotion research grounded in the salutogenic model of health

There seems to be no doubt that Antonovsky's attention from 1987 on was almost solely on the sense of coherence. Of all the research problems just listed, only the last is general to the salutogenic model of health, and we are not aware that Antonovsky pondered on the further development of the salutogenic model of health, or theorizing founded on the salutogenic model of health. As we have suggested elsewhere in this Handbook, it seems Antonovsky's lead was mesmerizing. He and many others in the salutogenesis arena paid and still pay all-consuming attention to the sense of coherence, particularly its measurement (Lindström & Eriksson, 2005) and its relationship to health and well-being (Eriksson & Lindström, 2006, 2007). There has been little interest in the study of the origins of the sense of coherence, and what mediates and moderates the sense of coherence and health. Put another way, the nature of the sense of coherence and its relationship to health has dominated salutogenic model of health scholarship.

True, some theory developments are evident, as sketched above. Yet these seem to be developed in isolation of one another, nor are they explicitly tests of the salutogenic model of health, or aimed at development of the salutogenic model of health as theory.

It seems fairer to say that the salutogenic model of health is a useful foundation for thinking about and describing departures from traditional risk factor thinking. This is quite evident in the Assets Model with its utility for resource-oriented policy and practice, and the Health Development Model, which is unique in its attractive amalgamation of pathogenesis and salutogenesis. The same seems true for Fortigenesis, with the room it makes for health-as-well-being. The Margin of Resources Model does seem to have relevance for development of the salutogenic model of health, even if the two are not explicitly linked. It suggests a mechanism connecting generalized resistance resources and health that does not involve the sense of coherence. Yet one wonders the degree to which the health promotion research community is even aware of the Margin of Resources Model; our search revealed no connection to health promotion, only the distant promise that a connection might be fruitful.

Closer to the health promotion area is the Self-tuning Model of Self-care, developed as it is by health promotion scholars, and actually used to guide intervention. It places the brain (cognitions, emotions, information processing) at the crux of coping, and suggests mental processes—

introspection, sensibility, and reflection—that can result in differential coping: changing one's situation, and/or changing one's perception of one's situation. The use of the PD approach seems to have significant potential to direct action research to exploit the links between generalized resistance resources and health.

Elsewhere in this volume Mittelmark and Bauer (Chap. 2) write about salutogenesis in various guises: as understood by Antonovsky in the salutogenic model of health, as a process intertwined with pathogenesis, and as an umbrella-like rubric for a positive health paradigm. It seems still too early to know which of these guises—or others—may come to define the salutogenesis of the future.

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The Salutogenic Model: The Role of Generalized Resistance Resources

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Introduction

This chapter reviews and integrates conceptual and empirical research focusing on the role of Generalized Resistance Resources (GRRs) within the Salutogenic model. In particular, this chapter discusses findings regarding the conceptual and empirical progress seen in the study of GRRs at the individual, family, and community ecological levels in understanding individual differences in sense of coherence (SOC). Each of the latter attempts to relate to the lifespan in its childhood, adolescent, and adult developmental phases. Specifically, the present chapter uniquely focuses on variables that may contribute to the understanding of individuals' level of SOC within the Salutogenic model, in contrast to previous reviews which focused primarily on SOC's role in understanding individuals' affective functioning, such as well-being, resilience, and coping strategies.

Overall, the term *Generalized Resistance Resources* (GRR) was coined by Antonovsky (1979, 1987) and comprises the characteristics of a person, a group, or a community that facilitate the individual's abilities to cope effectively with stressors and contribute to the development of the individual's level of (SOC). As proposed by Antonovsky (1987) the GRRs refer to "phenomena that provide one with sets of life experiences characterized by consistency, participation in shaping outcomes and an underload-overload balance" (Antonovsky, 1987, p. 19).

According to Antonovsky (1979, 1987) such resources may include the following factors (1) material resources (e.g., money), (2) knowledge and intelligence (e.g., knowing the real world and acquiring skills), (3) ego identity (e.g., integrated but flexible self), (4) coping strategies; (5) social support, (6) commitment and cohesion with one's cultural roots, (7) cultural stability, (8) ritualistic activities, (9) religion and philosophy (e.g., stable set of answers to life's perplexities), (10) preventive health orientation, (11) genetic and constitutional GRRS, and (12) individuals' state of mind (see Horsburgh & Ferguson, 2012 for a review).

In an attempt to develop a more parsimony model, Antonovsky (1987) merged the concept of the GRRs with his earlier concept of the 'stressors' and combined them into one concept—*Generalized Resistance Resources—Resistance Deficits (*GRR-RDs). Accordingly, each of these GRRs was presented on a continuum. Thus, an individual who is higher on the continuum tends to have consistent, balanced life experiences and high participation in decision making. In contrast, an individual who is lower on the continuum tends to have inconsistent, low balanced life experiences and low participation in decision making. In line with these assumptions, among individuals who are higher on the continuum the GRR-RDs are viewed as GRRs and among individuals who are lower on the continuum the GRR-RDs are viewed as GRDs. Based on these assumptions, both GRRs and GRDs (*Generalized Resistance Deficits)* contribute to the development of an individual's SOC.

Importantly, although the salutogenic model presumes that individuals develop strong SOC through successful applications of GRR-RDs across the lifespan, this model also proposed a reciprocal and dynamic relationship between SOC and GRR-RDs. Thus, GRR-RDs may contribute to an individual's level of SOC and an individual's level of SOC may contribute to mobilize GRRs for enhancing of tension management. However, as suggested by Antonovsky (1987), when GRRs or GRDs may became chronic and built into the

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life situation of the person, they are viewed as the primary determinants of the strength of an individual's level of SOC.

In general, the initial GRR resources (Antonovsky, 1979) may be perceived as manifested within the life experiences as proposed by Antonovsky (1991). Thus, three types of life experiences assumed to contribute to the SOC developmental process: consistency, load balance, and participation in shaping outcomes. The fourth dimension—emotional closeness—was added later by Sagy and Antonovsky (2000). The first of these life experiences—*consistency*—refers to the extent to which, during the course of growing-up, messages were clear and there was order and structure rather than chaos in one's environment. As suggested by Antonovsky (1991), experiences of consistency in an individual's life provide the basis for the comprehensibility component of the SOC. The second life experience—*load balance*—refers to the extent to which, during the course of growing up, one experienced overload or underload in the balance between the demands made upon one and one's resources. Such load balance is important for the SOC's manageability component. The third life experience—*participation in shaping outcomes*—refers to the extent to which one had a significant part in deciding her/his fate and was not an object of the power and whims of others. Participation in shaping outcomes provides the basis for the meaningfulness component. Sagy and Antonovsky (1996) selected the mentioned three life experiences in their qualitative analysis of the narratives of two women whose life histories were similar in their historical and social contexts. However, their life orientation as expressed in their stories and their levels of SOC were different (note: to be expanded upon receipt of article). The fourth life experience (Sagy & Antonovsky, 2000)—*emotional closeness*—refers to the extent to which one felt consistent emotional bonds and a sense of belonging in social groups of which one was a member. Similar to the *participation in shaping outcomes*, the *emotional closeness* resource was assumed as relevant to the meaningfulness component.

Generalized Resistance Resources: The Individual Level

Emotional Closeness and Attachment Relationships

As mentioned above, *emotional closeness* is one of the four types of life experiences assumed to contribute to the SOC developmental process (Sagy & Antonovsky, 2000). Close emotional relationships with significant others has been conceptualized primarily within the framework of attachment theory (Bowlby, 1973; Grossmann, Grossmann, & Waters, 2006; Mikulincer & Shaver, 2007). Overall,

Bowlby's attachment theory (1973; 1982/1969) underscored the role of early interactions with significant others in explaining individual variations in variety of emotional, social, and behavioral adjustment (Cassidy & Shaver, 2008; Grossmann et al., 2006). To be noted, although this theory focused on early interactions with significant others, studies have pinpointed that attachment theory is a lifespan developmental theory (see Mikulincer & Shaver, 2007 for a review). Accordingly, researchers have underscored how adults' attachment representations (Bowlby, 1973, 1982/1969) contribute to a variety of psychological resources such as coping with distress and affect regulation (Bernier & Matte-Gagne, 2011; Collins & Ford, 2010; Mikulincer & Shaver, 2004, 2007).

Briefly, attachment theory emphasizes that over the course of the first year of life, infants develop a specific and enduring relationship with their primary caretakers (Ainsworth & Wittig, 1969). Infants' strong tendency to seek proximity to caregivers is the overt manifestation of the inborn attachment behavioral system, which is designed to restore or maintain proximity to supportive others in times of need. Proximity to an available, supportive, and responsive caregiver ("attachment figure") provides the infant with a sense of "secure base," which refers to a set of expectations about others' availability and responsiveness in times of stress. As emphasized by this theory, attachment figures play a central role in the infant's cognitive, social, and emotional development as well as in the development of a sense of self (Bowlby, 1982/1969; Waters & Cummings, 2000). Children's experiences with attachment figures are internalized into "working models of attachment"—mental representations of significant others and of the self. These result in unique attachment styles, that is, stable patterns of cognitions as well as behaviors that are manifested in other close relationships and social interactions across the lifespan. In accordance with these assumptions, infants of available and supportive attachment figures are more likely to develop a sense of security and trust. In contrast, infants of unavailable, inconsistent, and/or unresponsiveness attachment figures are more likely to perceive the world as unpredictable, threatening, or rejecting.

In examining the relations between patterns of attachment and youngsters' well-adjusting functioning, the vast majority of attachment research studies indicated that securely attached children and adolescents revealed better mental health and functioning and higher levels of psychological well-being, than did children and adolescents with an insecure style (see Allen, 2008 and Grossmann et al., 2006 for a review). Data from such studies also suggested the role of youngsters' attachment relationships with significant others in understanding their level of SOC. For example, Al-Yagon (2010) investigated the possible role of children's attachment with mothers in understanding variance in children's

SOC in a sample of 205 mother–child dyads: 107 mothers and their children with specific learning disabilities (SLD), and 98 mothers and their typically developing children. Utilizing Structural Equation Modeling (SEM), this study's outcomes indicated that among both groups, children with and without SLD, children's attachment toward the mother significantly explained the variance in the children's SOC. Thus, children who felt more securely attached to the mother revealed a higher SOC level than did children who felt less securely attached to the mother. Similar findings emerged in examining the role of children's attachment with their fathers in explaining their level of SOC (Al-Yagon, 2011). Accordingly, for both groups (children with and without SLD), the variable of children's attachment toward the father significantly explained variance in children's SOC. Children who felt more securely attached to the father revealed a higher SOC than did children who felt less securely attached to the father.

Interestingly, in exploring the differences in the role of attachment with the fathers and the mothers, Al-Yagon (2014a) reported that in the model modified for elementary school children with SLD, a greater number of significant paths emerged between child–mother attachment relationships and internalizing measures than for child–father attachment. Data also showed that attachment with fathers contributed mainly to children's coping resources (i.e., SOC, hope, and effort), whereas attachment with mothers contributed to a broader range of internalizing adjustment measures including not only SOC but also self-reported loneliness and parent-rated internalizing problems. In other words, regarding attachment to fathers, those children with SLD who viewed themselves as more securely attached with the father reported a higher tendency to see the world as comprehensible, manageable, and meaningful (i.e., higher SOC) compared to children with SLD who viewed themselves as less securely attached.

The role of attachment relationships with significant others in understanding SOC has been less examined among adolescents and adults. However, such studies indicated similar findings to those reported for younger children. For example, in examining three groups of Chinese American college students, Ying, Lee, and Tsai (2007) highlighted the important role of close attachment relationships with both parents and peers in explaining these individuals' development of SOC. Specifically, this study's outcomes yielded that for the groups of early and late Chinese immigrants, both parent and peer attachment enhanced their level of SOC. Thus, these college students' ability to comprehend, manage, and find meaning in their world was contributed both by their parents who may have served as an anchor in their cross-cultural transition, and their peers who facilitated an understanding and mastery of the American environment. As suggested by Ying and his

colleagues (2007), such close relationships may be of particular importance for these college students due to the Chinese cultural values of stigma and privacy, which may reduce their likelihood to utilize campus mental health services.

Likewise, attachment studies on adults also highlighted the contribution of adults' attachment to their level of SOC, For instance, Mikulincer and Shaver (2005) reported that lower scores on attachment anxiety and avoidance (i.e., higher levels of attachment security) were associated with higher levels of meaning and SOC in life. In addition, in examining the role of adults' anxiety and avoidance attachment in exploring differences in SOC among parents of children with and without LD, Al-Yagon (2014b) highlighted the potential role of parents' own attachment anxiety for explaining their coping strategies. Specifically, for fathers from the two populations studied, a high level of anxiety in close attachment relationships, as reflected by a hyperactivation of negative emotions and rumination on distress-related thoughts (Mikulincer & Shaver, 2004), significantly contributed to fathers' low SOC. Similar findings emerged for mothers of children with SLD and for mothers of children with typical development, indicating that a high level of anxiety in attachment relationships significantly contributed to these mothers' low SOC. This study also underscored the role of parental high level avoidant attachment, as reflected by a lower tendency to adopt attachment-deactivating strategies (Mikulincer & Shaver, 2004) in contributing to parents' high SOC.

Along with attachment framework, studies have also utilized a variety of other measures to explore the role of emotional closeness in understanding differences in the individual's level of SOC. For example, in investigating the role of parent–child relationships in adolescents' SOC, García-Moya, Moreno, and Jiménez-Iglesias (2013) and García-Moya, Rivera, Moreno, Lindström & Jiménez-Iglesias (2012) indicated that the quality of parent–child relationships (i.e., perceived affection, ease of communication with parents, parental knowledge, and satisfaction with family relationships) emerged as the main predictors of adolescents' (aged 13–19) level of SOC. Focused on adulthood, findings from Volanen, Lahelma, Silventoinen, and Suominen (2004) suggested that for both men and women the quality of a close relationship with their spouse, significantly contributed to their level of SOC. Thus, an individual's poor close relationship with a partner was a major threat in predicting their level of SOC. Furthermore, a recent study (Daoud, Polsky-Berger, Abu-Kaf, & Sagy, 2015) on styles of marriage (polygamous versus monogamous) as predictors of SOC found that Bedouin women in polygamous marriages demonstrated higher levels of SOC than women in monogamous marriages, when controlling

for socioeconomic factors, sociodemographic factors, and social support.

Taken together, these findings suggested that the patterns of attachment relationships and the quality of close relationships with significant others contributed to variation in individuals' coping resources and abilities (i.e., SOC), across the lifespan (see Mikulincer & Shaver, 2007 for a review). Accordingly, these outcomes highlighted that securely attached individuals appraised themselves as able to cope effectively with stressors, whereas individuals with insecure attachment manifested deficiency in these coping resources. Furthermore, as assumed by attachment researchers, patterns of secure attachment and high qualities of emotional closeness may enhance support-seeking in constructive and effective ways, whereas patterns of insecure attachment and low qualities of emotional closeness may increase inhibition or interference with effective support-seeking (Florian, Mikulincer, & Bucholtz, 1995; Seiffge-Krenke & Beyers, 2005).

Personal Characteristics and Resources

Studies have also explored the possible role of the individual's characteristics and resources in facilitating his/her level of SOC. For example, Volanen et al. (2004) examined the effect of childhood living conditions on SOC levels among men and women aged 25–64. Specifically, childhood living conditions comprised family long-lasting economic difficulties, alcohol problems of the family's member, individual's feeling of fear from some family member, and family's conflicts. Outcomes from this study reported that childhood living conditions showed a strong association with men and women's SOC. As suggested by those researchers, poor childhood living conditions may affect adult SOC in various ways such as the negative impact on self-esteem and positive life attitudes that may contribute to low levels of SOC.

Studies have also explored the role of another demographic feature—the marital status—in understanding SOC. For instance, Read, Aunola, Feldt, Leinonen, and Ruoppila (2005) examined a sample of Finnish participants aged 65–69 years. Outcomes from their study yielded that for men, unlike women, marital status has an important impact as a GRR. Accordingly, for men being married or cohabiting was positively associated with SOC and, SOC in turn contributed to physical, social, and psychological health. As suggested by these researchers, marriage may enhance health in several ways such as influencing the physical and psychosocial environment in which the individual lives. These results were similar to those reported by several other studies demonstrating the beneficial effect of marriage in buffering against morbidity and mortality, especially for men (see Read, Aunola, Feldt, Leinonen, &

Ruoppila, 2005 for a review). Several explanations were proposed regarding these results, such as the possibility that men may profit more than women from marriage as a GRR because healthy lifestyle and behaviors are more encouraged by wives than husbands, due to the women's tendency to value health more than men (Read et al., 2005).

In these contexts of personal characteristics and resources, Al-Yagon (2014b) explored the role of parents' emotional resources (attachment anxiety/avoidance and negative/positive affect) in explaining differences in their coping resources (child-related active/avoidant coping and SOC). Focused on parental emotional resources in understanding their SOC, this study highlighted the potential role of parents' positive and negative affect in explaining their SOC, especially among parents of children with SLD, and more so for mothers of children with SLD than for fathers. Specifically, higher levels of positive affect such as feelings of "energetic" or "happy" significantly contributed to parents' higher SOC levels for both groups of fathers and mothers of children with SLD. In contrast, higher negative affect such as feelings of "anxious," "tense," "agitated," or "worried" significantly contributed to lower levels of parental SOC across the board.

In accordance with these outcomes, a high level of negative parental affect was a major risk factor for lower SOC and a high level of positive affect was a major protective factor for higher SOC. This study suggested several directions for interventions, such as teaching parents to become more attuned to their own emotional functioning, learn how their feelings influence parenting, and learn strategies to regulate emotions (Al-Yagon, 2014b).

Of particular importance studies of personal characteristics and resources among individuals in the "third age" emphasize the contribution of psychological resources on SOC. Wiesmann and Hannoch (2011) examined salutogenic predictors of multiple health behaviors in a sample of healthy "third age" individuals and, in accordance with Antonovsky's (1987) hypothesis found that meaningfulness was the most distinguishing among the SOC components. Moreover, the aging individuals reported that their lives made sense and were worthy of commitment and engagement. SOC components were significantly associated with multiple health behaviors and were also significantly interrelated. In accordance with the salutogenic theory, the strong correlations among the components explained their overlapping and yet distinct character. Furthermore, meaningfulness mediated self-esteem and self-efficacy influences on multiple health behaviors and advanced age was associated with a higher extent of comprehensibility of the world. The latter supported the salutogenic assumption that psychological resources such as self-esteem and self-efficacy created life experiences that contributed to the individual's meaningful world.

Individuals' Social Support

In general, studies on social support investigated individuals' resources from a variety of approaches such as contextual, emotional, and cognitive perspectives and also highlighted that the presence of others in stressful situations enhances one's mental health (see Srensen, Klungsyr, Kleiner, & Klepp, 2011 for a review). Such studies focused on several dimensions of social support like the availability of support, irrespective of the extent of the support, provision of emotional support, information, tangible care, or material assistance from one's social network (Cohen, 2004). In examining the possible influence of social support on the development of SOC, Antonovsky and Sagy (1986) proposed that stable social support may reflect stable community and therefore may enhance the development of a stronger SOC.

Consequently, several studies have examined such assumptions. For example, data from research studies among children and adolescents emphasized the contribution of social support provided by classmates and teachers at school (Bowen, Richman, Brewster, & Bowen, 1998; Natvig, Hanestad, & Samdal, 2006), as well as from friends in the peer group (Evans, Marsh, & Weigel, 2010; Marsh, Clinkinbeard, Thomas, & Evans, 2007) for individuals' level of SOC. Similarly, these studies also demonstrated the role of aspects of neighborhood social support such as neighborhood social cohesion (Marsh et al., 2007; Nash, 2002).

Studies have also explored the possible role of social support among adults. For example, Volanen, Lahelma, Silventoinen, and Suominen (2004) reported that among men and women aged 25–64, the ability to receive social support and their satisfaction with this support contributed to the level of SOC among both sexes. At the same time, Volanen et al. (2004) raised the possibility of reciprocal relationships between these two variables suggesting that high level of social support may contribute to SOC and a strong SOC may help gain social relationships.

Genetic Factors

According to the salutogenic model, two major subgroups of variables are essential for the GRRs. First, major psychosocial GRRs extensively described previously and second genetic and constitutional GRRs (Antonovsky, 1979). For example, in exploring the psycholofical factors, in the late 1990s Cohen conducted a study among 74 women (mean age 35) where she examined which variables, sociological or personality factors, best explained the development of SOC (Cohen, 1997). The relationship between a narcissistic personality trait and the SOC was explored. The results showed that narcissistic elements made a more significant contribution to the SOC than the sociodemographic factors did. Here, especially items from the Narcissistic Personality Questionnaire linked to feelings of entitlement and self-satisfaction made the most significant contribution to SOC. A few years later, the question of the SOC as a state or personality trait was raised (Schnyder, Büchi, Sensky, & Klaghofer, 2000). The main aim of this longitudinal study was to investigate the stability of the SOC over 6–12 months and how SOC was associated with depression and anxiety ($n = 156$). The results showed that SOC could be seen as a relatively stable trait. It was negatively associated with depression and anxiety. The authors concluded that SOC was not merely a proxy measure of psychopathology, but rather a partially independent, general measure of a person's world view.

This was in the late 1990s and early 2000s. Recent research exploring genetic factors was conducted on twins. However, research on the association between genetic factors and SOC is sparse. Hansson and colleagues (2008) conducted the Twin Mother's Study with the specific aim to explore individual resilience factors from a genetic perspective among 326 Swedish twin pairs (150 monozygotic and 176 dizygotic). The study was the first one to investigate how genes and the environment influence resiliency/salutogenic factors. The results showed that nonshared environmental components were of principal importance in individual resiliency/salutogenic factors, but noted that genetic influences were important. They found that 35 % of SOC was due to genetic effects and 57 % was due to nonshared environmental effects (environmental differences between the twins). More recently published research confirmed the results of the Swedish Twin Mother's Study. Silventoinen and colleagues analyzed the effects of genetic and environmental factors on the SOC in young adulthood among 3193 Finnish twins (Silventoinen et al., 2014). The twins and their parents rated their emotional family environment independently when the twins were 12 years of age. The findings showed that genetic factors explained 39 % of the variation of SOC in males and 49 % in females. The rest of the variation was explained by environmental factors unique to each twin individually. For the dimensions of SOC, the highest genetic correlation was found between comprehensibility and manageability (0.90 in males and 0.97 in females). Taken together, these studies emphasize the possible role of genetic factors as well as environmental factors in understanding individual SOC.

Generalized Resistance Resources: The Family Level

Parental Resources

As argued by many studies, parents' psychological resources as well as their developmental histories may influence the quality of their childrearing and, through parenting, child development outcomes (Arteche & Murray, 2011; Belsky & Pluess, 2012). Such studies investigated diverse parental personal resources including variables such as parents' psychopathology and well-being (Campbell, 2003; Goodman & Gotlib, 2002), parents' personality (Belsky & Barends, 2002), and parents' patterns of attachment (Mikulincer & Shaver, 2007). In light of these studies' assumptions, the current section will review research studies focusing on the possible role of parental personal resources in understanding children's SOC.

For example, outcomes from Al-Yagon (2008) reported on the unique value of maternal level of SOC to her offspring's level of SOC. As suggested by this study, one may assume that mothers with high coherence levels, who tend to perceive stressful situations as less threatening and as more manageable, may provide their children with a more secure, consistent, and calm environment and may model effective strategies to cope with stressors as well. Similarly, Idan (2010) examined the role of parental SOC, hope, and family climate in explaining the coping resources, such as SOC, of high school students with severe and persistent LD, and reported that parental and family resources (parents' cohesion, SOC, hope, and effort) predicted their children's coping resources (children's cohesion, SOC, hope, and effort).

Research has also highlighted the contribution of fathers' emotional resources (i.e., attachment and affect) in explaining their offspring's SOC. For instance, Al-Yagon (2011) reported that among school-age children with SLD or with typical development, fathers' high positive affect and low level of avoidance in attachment relationships as reflected by a lower tendency to adopt attachment-deactivating strategies (Mikulincer & Shaver, 2004) contributed to children's high level of SOC.

In addition, studies on parental resources also investigated the possible influence of parenting style. For example, in a longitudinal study, Feldt, Kokko, Kinnunen, and Pulkkinen (2005) showed that parental child-centeredness, which refers to an accepting and emotionally warm parental attitude toward the child combined with parents' supervision, was the only adolescents' variable that contributed to these participants' high SOC in adulthood.

Together, these studies suggested that in order to provide optimal care and a more consistent and load balanced environment, which in turn might enhance children's level of SOC, parents must possess sufficient psychological and coping resources such as regulating impulses, taking others' perspectives, perceiving stressful situations as more manageable, and providing a model for effective coping with stressors (Belsky, 1984; Zahn-Waxler, Duggal, & Gruber, 2002).

Families' Demographic Resources

In exploring the GRRs, research studies have also demonstrated the possible role of the family's demographic resources and characteristics. For instance, Ristkari, Sourander, Rønning, Nikolakaros, and Helenius (2008) reported that low level of parental education level, death and serious illness of parents, and parental divorce contributed to lower levels of SOC among young men. Thus, higher levels of parents' education (Feldt et al., 2005), higher economic status (Geckova, Tavel, van Dijk, Abel, & Reijneveld, 2010), and living with both parents (Ayo-Yusuf, Reddy, & Van Den Borne, 2009) contributed to higher level of SOC. Additionally, in accordance with the salutogenic framework assumptions on the GRRs (Antonovsky, 1979, 1987; Horsburgh & Ferguson, 2012), studies exploring families' demographic resources have also shown the role of familial economic wealth as a general resistance resource that increases individuals' opportunities to have SOC-promoting experiences (García-Moya, Rivera, Moreno, Lindström, & Jiménez-Iglesias, 2012).

Family Climate Factors

Several studies have highlighted the influential role of families' climate factors in SOC development across the lifespan. For example, in a study of elementary school children, Sharabi, Levi, and Margalit (2011) emphasized the possible role of family cohesion, one of two dimensions in Olson's (1986) Circumplex Model of family climate, on children's SOC. Findings revealed that children in cohesive families reported higher levels of SOC compared to children within noncohesive families.

Family climate factors have been found to contribute during the adolescent period as well. For instance, data from García-Moya and her colleagues (2012) demonstrated the role of family context as an important scenario in adolescents' SOC. This study yielded that among the family variables the following had a significant individual influence

on SOC during adolescence, of which the most influential family dimensions were affection, ease of communication, and parental knowledge of their adolescents' life, such as their friends and leisure time activities. This study also demonstrated the contribution of the quality of relationships between the parents to adolescents' level of SOC. Similar results reported by Marsh and colleagues (2007) indicated the negative effect of parental high level of conflict in predicting levels of SOC in middle school youngsters. Furthermore, in an additional study on adolescents, Garcia-Moya, Moreno, and Rivera (2014) reported that the quality of the relationships between parents and their children was the most influential factor in explaining adolescent SOC.

The importance of the family environment on the development of SOC was similarly demonstrated in Silventoinen and colleagues study (2014). The longitudinal study aimed to analyze genetic and environmental factors and their interaction affecting SOC among a large set of Finnish twins during young adulthood and during their home environment in childhood. The underlining assumption was based on evidence showing a strong genetic component behind psychological traits, such as personality and social attitudes (Bouchard & McGue, 2003). The study's results emphasized the significance of a supportive childhood home on the development of a strong SOC in early adulthood. Genetic differences between individuals explained a third to one-half of the variation of SOC, especially in supportive family environments. Children who grew up in supportive family climates and experienced fewer emotional tensions with their parents demonstrated more genetic and less environmental variation in SOC in adulthood than children who were raised in emotionally less positive family climates.

Data from research on families from at risk populations also emphasized the role of family factors in explaining variation in SOC. The following review focuses first on families with special needs. For example, among families with children with Autism Spectrum Disorder (ASD), the severity of the disorders and their typically developing siblings' resources influenced the latter's SOC. Additionally, this study also demonstrated that among the group with high severity ASD symptoms, greater number of positive coping strategies buffered the typically developing siblings' SOC (Smith, Elder, Storch, & Rowe, 2015). Significant coping strategies that were strongly associated with higher SOC included engaging in demanding activities, ventilating feelings, avoiding problems, and solving family problems. The strongest positive correlation was engaging in demanding activities, whereas ventilating feelings had a negative correlation suggesting that typically developing siblings who did not get angry or complain had lower SOC scores.

Other findings related to ASD compared the levels of SOC in parents of children with autism and parents of typically developing children and also examined the association between SOC levels and coping strategies. Pisula and Kossakowska (2010) found that parents raising children with ASD had a lower level of SOC compared to parents raising typically developing children. The SOC level of parents of children with ASD was positively correlated to seeking social support and self-controlling and negatively correlated with accepting responsibility and positive reappraisal. In the group of parents of children with ASD, positive correlations between distancing and total SOC, comprehensibility, and meaningfulness were revealed. The latter was perceived to indicate that having high levels of SOC orientation coincided with cognitive distancing from problems. These findings confirmed previous findings (Olsson & Hwang, 2008) that parents of children with ASD had lower levels of SOC than parents of typically developing children and emphasized that the high level of stress related to the demands associated with raising a child with ASD had a negative effect on parental SOC (Mak, Ho, & Law, 2007).

Moreover, Pisula and Kossakowska (2010) considered additional potential factors of lower SOC among parents of children with ASD. In line with Antonovsky's (1987) suggestion that SOC developed in childhood and early adolescence, stabilizing at early adulthood, they proposed that levels of SOC may fluctuate within life's circumstances and thus, difficult life experiences, such as raising a child with ASD, may affect the level of parental SOC.

Reviewing at risk families revealed several types of families, among which were those coping with traumatic life experiences, such as the Holocaust. Fossion and colleagues (2015) examined the consequences of extreme family functioning on resilience, SOC, anxiety, and depression. Results demonstrated that the children of Holocaust survivors' family types were more often damaged than in the general population. Growing in a damaged family impeded the development of coping strategies and enhanced the existence of depressive and anxiety disorders. In line with Fossion and colleagues' study (2014) on SOC and resilience in cases of multiple traumas, SOC was predicted to mediate between extreme families and the emergence of depressive and anxiety disorders. The recent study (Fossion et al., 2015) confirmed in a group of children of Holocaust survivors that which was found among Holocaust survivors: SOC mediated between family types and depressive and anxiety disorders.

Similarly, Zeidner and Aharoni-David (2014) found indirect effects of SOC in the relationship between memory traces of specific traumatic experiences of Holocaust survivors and adaptive outcomes. They concluded that the horrors of the Holocaust recruited the survivors' inner strengths and coping resources, which in turn contributed to the development of a stronger sense of meaning and coherence, improving a better sense of mental health.

Generalized Resistance Resources: The Community Level

School Setting

Studies of school settings focused attention on the effect of the school setting features on SOC and its contribution as a mediating factor. Throughout the school years, students are faced with an array of increasingly difficult challenges related to their academic functioning. For instance, a study of the Norwegian education system (Natvig et al., 2006) explored elementary through junior high school children focusing on age and gender comparisons with regard to school-related stress and resources and their relations to the SOC construct. The sample consisted of 4116 school children aged 11, 13, and 15 years old. This study revealed that SOC was related to school-related characteristics, such as feeling pressured by schoolwork, social support from peers, and expectations. Sex and age variables played a significant role indicating that among the group of girls, the association between SOC and school-related characteristics was stronger among the youngest group.

In an attempt to explore the influence of school-related characteristics among youngsters with special needs, studies emphasized the prolonged academic challenges emerging from neurodevelopmental disabilities. As suggested by previous studies, these youngsters' difficulties at school remain a continuous source for increased stress, endless day-to-day struggling with age-appropriate academic roles, and with social and emotional challenges that in turn may contribute to their lower SOC (Idan, 2010; Idan & Margalit, 2014; Lackaye & Margalit, 2006).

As demonstrated by Idan's (2010) study, high levels of SOC were related to high levels of autonomy/competence, a subscale of the Basic Psychological Needs construct. In general, this construct refers to the individual's natural, innate, and constructive tendencies to develop a unified self. This tendency toward integration is characterized as involving both autonomy, tending toward inner organization and self- regulation, and homonymy, tending toward integration of oneself with others. Healthy development involves the complementary functioning of these two aspects (Deci & Ryan, 2008). These inner resources, innate psychological needs, are the bases for integrating the differentiations of goal contents and regulatory processes. Should the needs—competence, autonomy, and relatedness—be satisfied, individuals will develop and function in healthy and optimal ways (Deci & Ryan, 2000).

Idan's (2010) findings show that the highest levels of SOC and autonomy/competence were reported by females with SLD in a special high school compared to typically developing females and females with SLD from regular school classes. The highest levels of SOC and autonomy/competence among adolescent males were reported by typically developing males. This parallelism between females with SLD in a special high school and typically developing males, and more interestingly, the females' high scores in levels of SOC and autonomy/competence may be explained by the females' belief that they had more control over their lives. Consequently, these females with SLD from the special school were able to better predict their internal and external environments, whether they be positively inclined or not. An additional explanation may lie in the possible role of the classification following diagnosis as SLD in self-evaluation, which in turn, may contribute to the level of SOC. Consequently, as suggested by Idan (2010), girls who had never had such a diagnosis lacked this so-called protection and bad grades may have been evidence that they were not smart enough to do well in school. On the other hand, boys who were diagnosed in the past with learning disabilities demonstrated declining levels of perceived intelligence regardless of their academic achievement. This may testify that boys may be more concerned with impersonal labeling removed from the classroom setting.

A prominent school-related feature is the role of the teacher as an extrafamilial significant other. In illustration of this, in a study focusing on the perception of teachers as a secure base among children with reading difficulties, Al-Yagon and Margalit (2006) revealed that children's reading difficulties affected their lower level of SOC. Children's perceptions of the teacher as a source of secure base were significantly related to high levels of SOC, emphasizing the possible protective role of extrafamilial figures who provide care and support in times of need.

Taking into account the above review of school-related characteristics, a scarcity of studies is apparent and calls for further exploration, examining in depth the variables that were presented in addition to a variety of other school-related features that may shed light on the school community.

Community Feature

In an attempt to shift from the personal to the collective SOC, based on the understanding that an individual is part of a larger community, studies have explored possible features of communities that may contribute to collective SOC. Sense of community coherence (Peled, Sagy, & Braun-Lewensohn, 2013) consists of the identical three components of the individual's SOC concept. Comprehensibility refers to the sense of predictability and security felt by the members of a community and the extent of which the community is comprehensible; manageability refers to the

ability of the community to assist its members in times of need; and meaningfulness refers to the ability of the members of the community to express themselves in order to feel a higher level of satisfaction and interest within the community. Studies on community ecology revealed its role in predicting SOC development. Being a member of a minority group predicted lower SOC than being a member in a majority group (Braun-Lewensohn & Sagy, 2011a, 2011b). Additionally, social support (Marsh et al., 2007) and neighborhood or community cohesion (García-Moya et al., 2013; Marsh et al., 2007; Peled et al., 2013) were contributing factors in the development of a strong SOC.

In this context of community features, prior studies have also investigated communities that cope with high and extreme levels of stress, such as political violence and war. For example, studies focusing on SOC and political violence revealed SOC as a mediator between exposure to missile attacks and stress-related reactions among adolescents (Braun-Lewensohn, Sagy, & Roth, 2011) and as a mediator between attitudes toward war and peace within the Israeli–Palestinian conflict and anxiety reactions among adolescents living in a conflictual area (Braun-Lewensohn, Abu-Kaf, & Sagy, 2015). Together, in both studies, strong SOC was related to higher resiliency and to lower levels of stress-related reactions. In line with the assumption that peaceful ideas were correlated to stronger SOC (Pham, Vinck, & Weinstein, 2010), outcomes from the study of Braun-Lewensohn and colleagues' (2015) suggested that adolescents who supported resolution of the Palestinian–Israeli conflict in peaceful ways had a stronger SOC and were less anxious. In contrast, those who supported more violent conflicts and war did not reveal this relationship. SOC acted as mediator between peace and war attitudes and anxiety solely for peaceful attitudes.

Conclusions and Directions for Further Research and Interventions

Together, the surveyed research studies emphasized the need for continued in-depth exploration of the possible role of different GRR-RDs for understanding individuals' SOC in different developmental phases across the lifespan, as well as through the individual, family, and community ecological levels. Furthermore, based on the expansion to community SOC, such in depth exploration regarding the GRR-RDs is required. Moreover, in examining the impact of GRR-RDs on individuals' and communities' levels of SOC, it seems important to reconsider the possible role of several main factors as follows.

Reciprocal Relationship Between GRR-RDs and SOC

As mentioned above the salutogenic theoretical framework proposed that over the lifespan, individuals may develop high levels of SOC through successful applications of GRR-RDs. At the same time, this theoretical framework also assumed a reciprocal and dynamic relationship between SOC and GRR-RDs. Consequently, whereas GRR-RDs may contribute to an individual's and community's levels of SOC, an individual's and community's levels of SOC may in turn contribute to mobilize GRRs for enhancing the ability of stress management (Antonovsky, 1987; Sagy & Dotan, 2001). However, only few research studies reviewed in the present chapter examined this assumption on the reciprocal relationships between these two variables (e.g., Volanen et al., 2004), calling for future investigation regarding the possible bidirectionality of these interrelationships.

Individuals' Differential Susceptibility to Environment Effects

Previous studies have underscored that individuals may vary in their responsivity to the qualities of their environments, including their childrearing experiences (see Pluess & Belsky, 2011 for a review). These assumptions are generally framed in diathesis-stress or "dual risk" terms, proposing that some individuals tend to be more vulnerable due to their biological/neurological and or behavioral characteristics (i.e., "stress" or "risk 1") to the adverse effects of negative experiences and environmental qualities (i.e., "diathesis" or "risk 2") (Belsky, Bakermans-Kranenburg, & van Ijzendoorn, 2007; Belsky & Pluess, 2009; Trentacosta et al., 2008), whereas others may be relatively resilient to these negative factors. Findings from such studies have also pinpointed that individuals may vary not only in the degree to which they are vulnerable to the negative effects of adverse experiences but also, more generally, in their "developmental plasticity" (Boyce & Ellis, 2005). Accordingly, this hypothesis which was termed the "biological sensitivity to context" (Boyce & Ellis, 2005), or "differential susceptibility hypothesis" (Belsky, 2005), assumes that individuals may vary in their susceptibility to both adverse and beneficial effects of childrearing influences.

Overall, studies analyzing the susceptibility factors that may contribute to individual children's differential susceptibility emphasized the possible role of three categories of variables, such as genetic factors (e.g., short allele of the

serotonin transporter linked polymorphic region, 5-HITTLPR), the physiological factors (e.g., cortisol reactivity), and behavioral factors (e.g., negative emotionality) (see Pluess & Belsky, 2011 for a review). Such findings call for comprehensive additional exploration regarding individuals' variations in genetic, biological, and behavioral sensitivities, which may predict their susceptibility not only to the adverse effects of GRR-RDs, but also to beneficial effects of such factors. Such differential susceptibility has rarely been examined among communities, calling for future comprehensive investigation.

Flexibility Versus Stability

The current review raises an important question regarding the flexibility versus stability of SOC across the lifespan. Antonovsky (1987) hypothesized that SOC develops during childhood and stabilizes during the early adulthood stage. In contrast, other research proposed SOCs changes over an entire lifetime (e.g., Nilsson, Holmgren, Stegmayr, & Westman, 2003; Nilsson, Leppert, Simonsson, & Starrin, 2010). These findings raise several important issues regarding the longitudinal fluctuations as well as stability versus flexibility in individual SOC across the different development phases.

Selected GRR-RDs

Conceptual matters merit words of caution, regarding the possible role of GRR-RDs in understanding individuals' level of SOC. Inasmuch as these selected GRR-RDs reviewed in the current chapter are only few of the possible individual, familial, and community factors, additional resources should be considered. Such resources may include the individual's self-regulation and executive functioning abilities, parental monitoring levels, and parental anxiety, as well as school climate and collective versus individual approach.

Clinical and Interventional Implications

Acknowledging the importance of SOC as a factor contributing to effective coping with challenges and stressors and well-being, several intervention programs were developed in order to enhance SOC. These interventions highlight the factors that develop SOC throughout the lifespan and emphasize the flexibility of the construct and its potential influences (Janik & Kroger, 2007; Kahonen, Naatanen, Tolvanen, & Salmela-Aro, 2012; Mayer & Boness, 2011; Pallasch & Hameyer, 2008). The

following provides examples of interventions promoting SOC in different contexts.

Within the school setting, Mayer and Boness (2011) proposed a didactic model (the team ombuds model) which aimed at promoting SOC and transcultural competencies in educational contexts. Based on studies demonstrating that teachers perceived educational approaches such as concepts of intercultural communication as enriching and stimulating, strengthening self-consciousness, self-worth, and SOC (Pallasch & Hameyer, 2008), the model aimed at promoting GRRs of learners and teachers as well as at ameliorating comprehensibility, manageability, and meaningfulness. It was based on a vertical hierarchy of interacting social units in which learners created teams which were the basis of the educational process. The students who were in a position of trust worked closely with the teachers in resolving conflicts or improving interaction between the students and their teachers. This led to an increase in team competence and individual performance which decreased feelings of anxiety, dissatisfaction, and uncertainty (Janik & Kroger, 2007). Thus, the learning input was acquired during team work (comprehensibility), team work was promoted (manageability), and students learned how to learn and set priorities according to their interests (meaningfulness).

Within an occupational context, Kahonen et al. (2012) reported on two group interventions (psychodramatic and analytic) promoting SOC in an occupational healthcare context. The psychodrama method was based on socio and psychodramatic techniques, such as drawing, music, and writing, and muscle relaxation and exercises using the imagination. The analytic method (Foulkes & Anthony, 1990) was based on free flowing discussions in order to provide the participants with (1) a sense of security and belonging on the collective level, creating an atmosphere that enables expression of personal feelings; (2) an ability to discuss the feelings awakened by the group on a projective level; and (3) an awareness of one's inner world and its development in the complex relationship between past and present on the transference level. The action-based psychodrama group showed a higher increase in SOC than the dialog-based analytic group, while the improvement in the latter group was significant during the 6-month follow-up. The study concluded that due to its effectiveness, group intervention should be considered an important strategy alongside improvement in the organizational climate and second, that it was possible to enhance SOC by a relatively short group intervention among employees suffering burnout symptoms.

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Introduction

This chapter discusses conceptual and concrete differences between generalised and specific resistance resources in the salutogenic model of health. This is important to health promotion research and practice, because the means by which these different types of resources are strengthened are dissimilar. It is important to distinguish between the two types of resistance resources, to ensure that health promotion pays balanced attention to both types. As this chapter explains, the ways in which generalized resistance resources and specific resistance resources are developed may differ, with implications for health promotion practice.

To summarise the main idea of this chapter, generalised resistance resources arise from the cultural, social and environmental conditions of living and early childhood rearing and socialisation experiences, in addition to idiosyncratic factors and chance (Lamprecht & Sack, 2003; Lindström & Eriksson, 2005). Specific resistance resources (SRR) on the other hand are optimised by societal action in which health promotion has a contributing role, for example the provision of supportive social and physical environments.

The Salutogenic Model of Health Logic

Antonovsky (1987) called for research to develop scientific knowledge about how to strengthen the sense of coherence. This could be done by building on the resistance resources that are the properties of individuals, of groups, and even of situations. Generalized resistance resources (GRR) facilitate coping with stressors and strengthen the sense of coherence.

Confronting the question of how a strong sense of coherence translates into better health, Antonovsky proposed that "a strong SoC [...] allows one to 'reach out', in any given situation, and apply the resources appropriate to that stressor" (Antonovsky, 1996, p. 15).

The highly simplified salutogenic model of health logic is:

$$\text{RR} \rightarrow \uparrow \text{SOC} \rightarrow \uparrow \text{use of RR} \rightarrow \uparrow \text{HEALTH}$$

Generalized resistance resources and specific resistance resources will be formally defined later, but for now generalized resistance resources are resources that have wide-ranging utility (one's social network for example), while specific resistance resources have situation-specific utility (e.g. an emergency phone number to reach the police). Considering generalized resistance resources and specific resistance resources, Antonovsky felt it was:

> "...imperative to focus on developing a fuller understanding of those generalized resistance resources that can be applied to meet all demands" (Antonovsky, 1972, p. 541), while
>
> "... [SRRs] are often useful in particular situations of tension. A certain drug, telephone lifelines of suicide prevention agencies... can be of great help in coping with particular stressors. But these are all too often matters of chance or luck, as well as being helpful only in particular situations...[and] ... it is the GRR that determines the extent to which specific resistance resources are available to us" (Antonovsky, 1979, p. 98–99).

This goes a great way to explaining why Antonovsky's attention was mostly on the left side of the revised salutogenic model of health logic as shown below, which highlights the differentiation between generalized and specific resistance resources:

$$\text{GRR} \rightarrow \uparrow \text{SOC} \rightarrow \uparrow \text{use of GRR } \& \uparrow \text{use of SRR} \rightarrow \uparrow \text{HEALTH}$$

A more realistic depiction would be a systems-like diagram with double-headed arrows connecting everything to

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everything. Yet, the simplification is useful for the present purpose, which is to elucidate the GRR/SRR distinction.

Specific resistance resources need not always be 'matters of chance or luck'. Indeed, it is an essential aspect of the practice of health promotion to replace chance and luck with fair and dependable availability of specific resistance resources that support health. One of the highest priorities of health promotion is the provision of supportive environments for health (WHO, 2009). Supportive environments include both generalized resistance resources and specific resistance resources, but as suggested in the salutogenic model of health logic above, they have distinctions.

Most of the space in this paper is devoted to a discussion of the nature of specific resistance resources and health promotion's role in their nurturance. However, some space is given to a brief overview of the nature of generalized resistance resources, so that the distinctions, similarities and interrelationships between generalized resistance resources and specific resistance resources can be considered. The reader interested in a full exposition of generalized resistance resources is referred to the preceding chapter in this Handbook, and to Chapter Four in Antonovsky's Health, Stress and Coping (1979).

Antonovsky (1979, P. 99) defined a generalized resistance resource as "any characteristic of the person, the group, or the environment that can facilitate effective tension management". He was quite clear that generalized resistance resources and specific resistance resources are not exchangeable concepts: "...it is the GRR that determines the extent to which specific resistance resources are available to us... being literate or being rich... opens the way to exploitation of many specific resistance resources..." (Antonovsky, 1979, pp. 99–100). A perhaps more precise formulation is that when confronted with a particular stressor, a strong sense of coherence enhances one's ability to recognise and activate the most appropriate specific resistance resources from those that may be available.

Antonovsky (1979, pp. 103–119) discusses generalized resistance resources that operate through physical and biochemical mechanisms (e.g. immune function), that enable the acquisition of specific resistance resources (as money may do), that are intrapersonal (e.g. with ego identity, intelligence, and coping), that are social (interpersonal ties and social embeddedness), and that are cultural (providing guidance as to how stressors should be encountered). Generalized resistance resources play two important roles in coping: they help determine the strength of sense of coherence *and* they enable the use of specific resistance resources.

Specific Resistance Resources

The salutogenic model of health logic as diagrammed and discussed above is derived from Antonovsky's separate expositions on generalized resistance resources and sense of coherence and on sense of coherence and specific resistance resources (Antonovsky, 1979). Yet, neither Antonovsky nor the few others who have written about specific resistance resources have shown much interest in the GRR/SRR differentiation. For example, in Antonovsky's (1979) extremely detailed depiction of the salutogenic model of health (ibid, pp. 184–185), a strong sense of coherence is shown as mobilising generalized resistance resources and specific resistance resources with no differentiation of the two. Both types of resistance resources are posited to have roles in the avoidance of stressors, in the definition of stimuli and non-stressors, and in overcoming stressors. Antonovsky hardly mentioned specific resistance resources in his Unraveling the Mystery of Health, but when he did, he did not make a point of the distinction between generalized resistance resources and specific resistance resources:

> "What the person with the strong SoC does is . . . [choose] from the repertoire of generalized and specific resistance resources at his or her disposal. . ." (Antonovsky, 1987, p. 138).

Others seem to agree that the GRR/SRR distinction is not particularly important. Poppius (2007) writes about choosing "from the repertoire of generalised and specific resistance resources [. . .] in what seems to be the most appropriate combination". Nene (2006) notes that the sense of coherence is influenced by generalized resistance resources and by specific resistance resources and makes no differentiation between the two. Sullivan (2006) does make a differentiation, stating that nursing is a generalized resistance resource, while the nurse providing help with a particular problem is a specific resistance resource. Yet, Sullivan does not develop that distinction in terms of the role of sense of coherence. Haldeman and Peters (1988) intended to measure specific resistance resources in a study aimed to identify the combination of specific resistance resources and tension that would best predict stress. They operationalise specific resistance resources as satisfaction with family life and with family finances, frequency of interactions with friends and relatives and number of community resources used. These measures are distant from the concept of specific resistance resources as distinguished from generalized resistance resources, even if the number of community resources is measured. Specific resistance resources are particular resources used in encounters with particular stressors, as in Antonovsky's example of the use of a suicide hotline by a suicidal person. Reininghaus et al. (2007) noted the distinction between generalized

resistance resources and specific resistance resources, in a study of stress connected to assault on psychiatric nurses, then rejected the distinction by creating a measure of 'stress resistance resources' composed of self-esteem (a generalized resistance resource), self-confidence (a generalized resistance resource), received clinical supervision (specific resistance resource) and staff support services (specific resistance resource). Taylor (2004) differentiated generalized resistance resources and specific resistance resources in her literature review of salutogenesis as a framework for child protection, but characterised both, without differentiation, as helping people to structure life experiences to reinforce the sense of coherence.

These citations are not 'cherry-picked', highly selected counter-examples from a large literature in which generalized resistance resources and specific resistance resources are discussed: they are <u>all</u> the instances in which specific resistance resources received explicit attention, in a reasonably thorough literature search.

Why do specific resistance resources receive so little attention? One answer is that following Antonovsky's lead, there is all-consuming attention to the sense of coherence part of the salutogenic model of health logic—particularly its measurement (Eriksson & Lindström, 2005) and its relationship to health and wellbeing (Eriksson & Lindström, 2006, 2007). Even if Antonovsky wished health promotion to focus on the sense of coherence as the dependent variable, most researchers have focussed on it as the independent variable. While this could be assumed to drive interest in specific resistance resources as mediators in the sense of coherence/health relationship, such interest is not manifest. To the contrary, there has been little interest in the question of what *mediates* the connection between the sense of coherence and health, despite Antonovsky's postulation that a strong sense of coherence allows one, in any given situation, to apply the appropriate generalized resistance resources and/or specific resistance resources (Antonovsky, 1979).

One additional, critical point needs to be made in this attempt to clarify why specific resistance resources have received little attention in salutogenic research, and why this should be rectified. As already noted, Antonovsky viewed specific resistance resources as all too often matters of chance or luck. In the mid-1990s, he observed that health promotion had not:

> "…confronted the question of the creation of the appropriate social conditions which underlie or facilitate health-promotive behaviors, for example adequate day care facilities and access to health care, not to speak of incomes adequate for decent nutrition and housing." (Antonovsky, 1996, p. 12).

Put in contemporary terms, Antonovsky referred to social determinants of health (e.g. the generalized resistance resource 'income') and to supportive social environments (e.g. the specific resistance resource 'day care'). His

criticism was perhaps valid for the form of health promotion that dominated in Europe and the USA in the 1970s and 1980s, concerned mostly with individuals' responsibility for their own health and calling for individuals to abandon their risk behaviour to prevent chronic diseases.

However, health promotion has evolved. The 1986 Ottawa Charter for Health Promotion acknowledged individuals' responsibility, but emphasised the importance of social determinants of health and the creation of supportive environments (Eriksson & Lindström, 2008; Kickbusch, 2003). In recent decades, health promotion moved from an almost myopic concern with individuals' health-related lifestyles to balanced concern with processes for empowering individuals and communities to control their own health. This is accomplished, in good part, by creating environments supportive of health, or 'appropriate social conditions' in Antonovsky's words. Health promotion's concern with appropriate social conditions has taken two main forms. One is an overarching emphasis on reducing social inequities in health by a fairer distribution of social resources (Marmot, Friel, Bell, Houweling, & Taylor, 2008). The other is the health promotion 'settings' approach, in which schools, workplaces and whole communities are considered as locales for health promotion, expanding from the traditional locus of health care in doctors' offices, health clinics and hospitals (Dooris et al., 2007; Poland, Krupa, & McCall, 2009). Does health promotion's settings approach mean that it has engaged the specific resistance resource concept, or the generalized resistance resource concept? A nuanced answer depends in part on a precise definition of specific resistance resources.
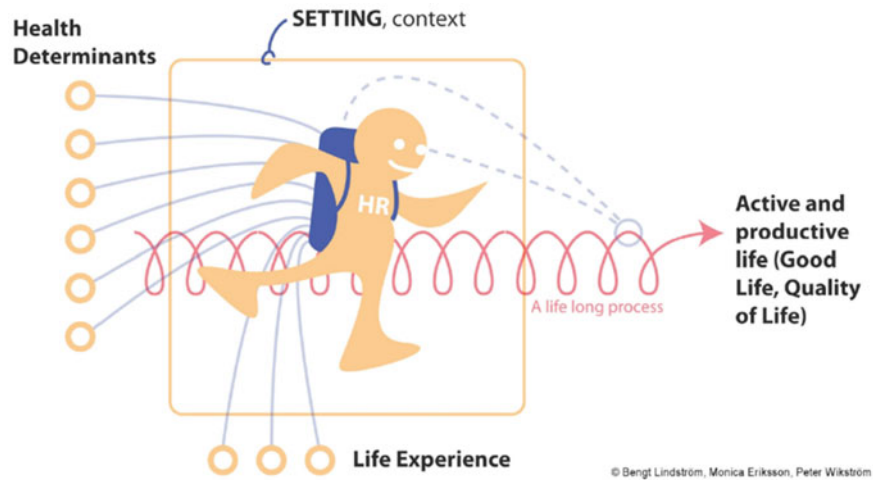
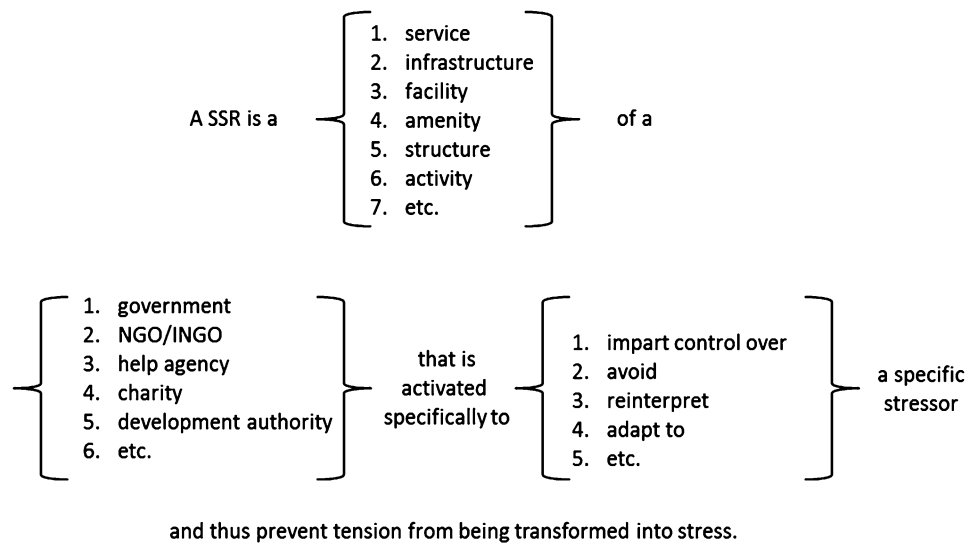## Definition of Specific Resistance Resources

A useful definition of specific resistance resources must distinguish them from generalized resistance resources. Bengt Lindström is famous for his illustrated lectures on salutogenesis in which a cartoon figure travels across the chalkboard, in the river of life, encountering stressors, trials and tribulations, equipped with a knapsack stuffed with generalized resistance resources acquired during a lifetime (Fig. 8.1). The main point is that the generalized resistance resources are already available, to be engaged as needed as one encounters various situations creating tension. In concert with this metaphor, we conceptualise specific resistance resources as available in the river, to be picked up and used as needed in specific encounters with stressors, and not necessarily to be placed in the knapsack afterwards. The relationship between generalized resistance resources and specific resistance resources is that via the sense of coherence, generalized resistance resources enable one to

Fig. 8.1 Generalized resistance resources in the knapsack

Fig. 8.2 Mapping sentence definition of specific resistance resources

A SSR is a
1. service
2. infrastructure
3. facility
4. amenity
5. structure
6. activity
7. etc.
of a

1. government
2. NGO/INGO
3. help agency
4. charity
5. development authority
6. etc.

that is activated specifically to

1. impart control over
2. avoid
3. reinterpret
4. adapt to
5. etc.

a specific stressor

and thus prevent tension from being transformed into stress.

recognise, pick up and use specific resistance resources in ways that keep tension from turning into debilitating stress.

A brief example: Having access to and understanding the empowering potential of the Internet is a generalized resistance resource. The availability of information about your present worrying symptoms on Wikipedia is a specific resistance resource. That you have access to, and proactively search for, read, critically evaluate and use the Wiki's information exemplifies the salutogenic model of health logic:

(a) GRR → ↑ use of SRR → ↑ HEALTH
(b) INTERNET → ↑ SPECIFIC WIKI → ↑ HEALTH

This is, of course, oversimplification. For example, while the Internet has undoubtedly contributed to enhanced sense of coherence for many people, it is but one of many generalized resistance resources having equal or greater influence on the sense of coherence. The point of the diagram is not to depict the salutogenic model of health in detail, but to show how generalized resistance resources and specific resistance resources are substantially different. Of course, health promotion interventions might focus on both; increasing people's unfettered access to the internet and their skill in using it (enhanced a generalized resistance resource)... and making web sites that address various specific health issues that are of salience when particular nasty symptoms pop up (enhanced specific resistance resources).

A formal definition of specific resistance resources is shown in Fig. 8.2, using Facet Theory's sentence mapping approach to formalisation of definitions (Borg & Shye, 1995;

Canter, 2012). Antonovsky (1979) used the same approach to define key concepts including health on the ease/dis-ease continuum (ibid, p. 65), generalized resistance resource (ibid, p. 103) and the sense of coherence (Antonovsky, 1987, p. 77). The elements in the three arrays of the mapping sentence definition are not meant to be exhaustive, but rather are illustrative.

Specific resistance resources are instrumentalities whose meanings are defined in terms of the particular stressors they are invoked to manage. A generalized resistance resource is a generality and a specific resistance resource is a particularity. Normally, specific resistance resources are not invoked unless tension is perceived to threaten to convert to debilitating stress, which many tensions do not. The salutogenic model of health is concerned with ubiquitous tensions that *do* have the potential to convert to health-threatening levels of stress. Antonovsky (1979, pp. 89–90) listed these:

> "…accidents and the survivors; the untoward experiences of others in our social networks; the horrors of history in which we are involved; intrapsychic, unconscious conflicts and anxieties; the fear of aggression, mutilation and destruction; the events of history brought into our living rooms; the changes of the narrower world in which we live, phase-specific psychosocial crises; other normative life crises—role entries and exits; inadequate socialisation, underload and overload; the inherent conflicts in all social relations; and the gap between culturally inculcated goals and socially structured means".

A useful examination of the differences between generalized resistance resources and specific resistance resources should be undertaken with this understanding of psychosocial stressors in mind. At extremes—surviving a plane crash, taking an exam—stressors are stressors from the start, or tensions that simply remain tensions.

An Example: The Turmoil of Adolescence

The starting point for this example is a poor, tough inner city neighbourhood in which a middle school (junior high school) is situated. Virtually all the adolescents attending the school are stressed all the time, by the demands of maturation, peer relations, teachers' demands, home and community conditions and so on.

The school aspires to be a health promoting school, and strives to meet these goals:

- Promote the health and well-being of students
- Enhance the learning outcomes of students
- Uphold social justice and equity concepts
- Provide a safe and supportive environment
- Involve student participation and empowerment
- Link health and education issues and systems

- Address the health and well-being issues of all school staff
- Collaborate with parents and the local community
- Integrate health into the school's on-going activities, curriculum and assessment standards.
- Set realistic goals built on accurate data and sound scientific evidence.
- Seek continuous improvement through on-going monitoring and evaluation

The school is obviously aiming to be a powerful generalized resistance resource for the youth, the staff, the parents and the surrounding community, even if all this is not necessarily expressed in salutogenesis concepts and terms. The salutogenic model of health posits that this school likely contributes to strengthened sense of coherence for many people in the school's psychosocial environment.

The school is also a repository of, or a portal to, some specific resistance resources:

- School guidance counsellors who help senior students make education and career choices
- A programme to support pregnant students to help keep them in school and socially integrated
- Special education teachers and facilities equipped to help students with learning disabilities
- Alert and effective connection to community child protection services

These specific resistance resources are present in or around the school, but they are not particularly salient to the adolescents that do not need them, and therefore do not use them. The school as a generalized resistance resource helps contribute in a general way to strengthen the sense of coherence of many pupils, and a strong sense of coherence facilitates the uptake/use of particular specific resistance resources when the need should arise. Let us consider two students. Jack has a typical day, experiencing 'normal' strain and hassles, but nothing out of the ordinary happens. Specific resistance resources abound, but this student makes use of none of them; they are not salient. On the same day, Jill discovers she is pregnant, and her sense of coherence is high enough that she does not panic, and sink into depression; rather, she contacts the pregnancy support programme, which she knows about and trusts because of the good experiences of other pupils. The pregnancy support programme is a specific resistance resource for this student, offering services that are highly salient at this particular point in her life.

There is a vexing equity dimension to this. If specific resistance resources are more readily available to those with lots of generalized resistance resources (e.g. money), specific resistance resources might actually contribute to a

widened equity gap. Equality in access to specific resistance resources depends on a reasonably fair distribution of generalized resistance resources, so health promotion needs to keep both types in focus.

The aim of this chapter has been modest, simply to illuminate a part of the salutogenic model of health that seems to be overlooked—specific resistance resources actually have as much or more relevance to health promotion practice as do generalized resistance resources. By drawing attention to the special nature of specific resistance resources, one also draws attention to what should be a core aim of health promotion: to ensure that availability of the right specific resistance resources at the right time is not all too often a matter of 'chance or luck', as Antonovsky worried.

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The Relevance of Salutogenesis to Social Issues Besides Health: The Case of Sense of Coherence and Intergroup Relations

Shifra Sagy and Adi Mana

Introduction

Antonovsky's salutogenic model and its core concept "sense of coherence" (SOC) focus on the ability of individuals to cope with stressors in life and stay healthy. Accordingly, the relationship between SOC and health has received much attention and quite consistent results in research (see Part III of this book). However, since the paradigm of salutogenesis was suggested in the discipline of sociology of health, the relationships between salutogenesis and other social concepts have been mostly neglected. Unfortunately, up to now, the salutogenic model has never been broadened into an interdisciplinary framework. We believe that at the dawn of our new millennium, which poses new challenges of interdisciplinarity in research and academic studies (Gruenwald, 2014), the salutogenic paradigm should broaden its scope. When we propose broadening salutogenesis into interdisciplinarity, we may consider disciplines such as psychology, economics, geography, and anthropology. Thus, this chapter aims to raise some new questions in the framework of the salutogenic paradigm toward interdisciplinarity and to review the few studies which have already attempted to deal with it.

First, we must deal with the core dilemma: Does the salutogenic orientation enable us to deal with other concepts beyond the relationship with health? And if so, how? How can we ask salutogenic questions employing concepts embedded in other disciplines?

Let us start with the first question. In his writing about the development of SOC, Antonovsky wrote extensively about how one's life situation can influence his/her strength of SOC (Antonovsky, 1987). In his dealing with this special issue—the origins of SOC—he expressed an interdisciplinary approach by relating to broad ranging factors like culture, social forces, social position, gender, ethnicity, genetics, or even plain luck (Benz, Bull, Mittelmark, & Vaandrager, 2014). Indeed, social factors have seldom been studied as predictors of SOC (e.g., Sagy & Antonovsky, 2000; Lam, 2007 and others). Two aspects in particular have mainly been studied: the experience of cultural integration vs. discrimination due to being part of a minority group (Ying et al., 2001), and the experience of cultural stability vs. instability (e.g., Antonovsky & Sagy, 1986).

Even though this body of research was mostly composed of correlational studies, which leave the direction of causality undetermined, in most of the studies, the suggested direction was that elements related to a variety of social factors should be considered as predictors of SOC.

However, while Antonovsky discussed the other direction of the equation, meaning how SOC can influence life situations, his answer was much less interdisciplinary. As Antonovsky's PhD student (the first author) I heard answers which seemed to be completely clear: "A salutogenic orientation, no less than a pathologic one, defines health and disease only in terms of functioning and survival. All that it argues is that the stronger the SOC, the more likely the system, whether individual, family or society, to function and survive" (Antonovsky, 1991, p. 8). What he meant was that SOC, whose development is influenced by social factors, cannot predict social concepts, which could have positive or negative connotations. Moreover, Antonovsky viewed such social factors as loaded by moral-philosophical problems, and as such, not inherently within the context of salutogenesis (Antonovsky, 1991). This original conviction of his can partly explain the focus of salutogenic research over almost four decades on the SOC/health hypothesis and why it has not been broadened to include other interdisciplinary concepts as well.

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By raising this question again, we assume that salutogenesis, 40 years later, is challenged by the call of interdisciplinarity. We believe that researchers can ask salutogenic questions in different areas, not only health and well-being, and perhaps find other salutogenic answers. When we employ an interdisciplinary approach, the salutogenic question then would not only be "Who copes successfully and stays healthy?" (Antonovsky & Sagy, 1986) but, for example, "Who expresses more openness to the "other"?" or "Who is a social activist who pursues justness in the world"? Or "Who is a peacemaker?" If we broaden the level, we can ask about salutogenic schools, neighborhoods, or other social institutions which enhance not only health and wellness but also justice, peace, and reconciliation. The definitions of these concepts can vary over different contexts and cultures, but the question stays a salutogenic one.

Now we arrive at the second part of our review: How can we ask salutogenic questions in an interdisciplinary framework? Relating to this "how" question, we review some studies which have already attempted to do so. Our interdisciplinary review starts with some studies which found positive interactions between SOC and the relations between members of the same community (e.g., Maass, Lindström, & Lillefjell, 2014; Morton & Lurie, 2013; Teig et al., 2009). Indeed, this evidence can be explained by the well-known relationship between strong social connection or connectivity and enhanced sense of health and well-being (Vaandrager & Kennedy, 2016). This explanation brings us back to the SOC/health equation. However, other explanations, embedded in social psychology theories, can be considered as well.

A second area of research deals with the relationship between SOC and social relations with out-group members. A small qualitative study (Griffiths, Ryan, & Foster, 2011) suggests an interesting explanation for the small amount of research on SOC and intergroup relations. The researchers used qualitative research methodology to explore how SOC was applied in daily life. Their findings suggest that SOC may be split into coping and adaptive capacities for concrete problems vis-a-vis social relations. Thus, a strong level of SOC was found to be effective in dealing with nonrelationship oriented problems but less effective in dealing with social relations oriented problems. It appears that different sets of resources, but not SOC, are required for dealing with the latter.

Other studies have attempted to explore the relationship between SOC and personal traits which could facilitate social relations with out-group members. Feldt, Metsäpelto, Kinnunen, and Pulkkinen (2007) analyzed the relations between SOC and the five-factor model of personality. The results indicate that a person with a strong SOC shows modest positive associations with extraversion, openness, conscientiousness, and agreeableness. Another study

(Pålsson et al., 1996) found negative correlations between SOC and personality traits of avoidance, detachment, hostility, and aggression and positive correlations between SOC and empathy.

In the political psychology area, SOC was measured as a predictor of different political attitudes. No correlations were found between SOC and attitude scales measuring patriotism, nationalism, and authoritarianism (Renner, Salem, & Alexandrowicz, 2004). However, political attitudes toward peace were found in correlation with strong SOC (Braun-Lewensohn, Abu-Kaf, & Sagy, 2015). In a study of Israeli adolescents during a politically violent event, we found a link between SOC and belief in peaceful ways of resolution in the context of the Israeli–Palestinian conflict. It appears that adolescents who had a strong SOC, also had a strong tendency to view the conflict as another challenge in life, perceived the conflict as manageable and as meaningful to cope with. This study, however, was a one-time, cross-sectional study and its causal interpretation could be also different.

In sum, the findings related to the relationship between SOC and personal traits or attitudes which facilitate social relations are quite ambiguous. However, other studies should be carried out to support their promising results. The prominent directions revealed from this body of research is that a strong SOC is connected with tendencies associated with positive values, at least in Western society. Are these conclusions that Antonovsky tried to avoid? Perhaps yes. In his lecture in Prague (Antonovsky, 1991) he indeed warned of the danger of defining health so that it becomes "…a catchall for anything that you think is good. Health then becomes not a scientific concept, but confused with a set of answers to moral-philosophical problems…the distinction must be made" (Antonovsky, 1991, p. 9). We deeply understand these warnings and accept them. In a later article (Antonovsky, 1995, p. 11), he warned against the danger of assuming that "the morally good is salutary." However, when we broaden salutogenesis to include concepts other than physical health, we cannot avoid these moral-philosophical questions about values and science. Thus, we have to deal with them while fully recognizing our limitations in making such a distinction.

Another direction of research which seems meaningful to be included in this review relates to larger social systems than the individual. Since attitudes and behaviors toward the out-group are developed within one's social context, the relationship between SOC and intergroup relations should be explored not only from the individual perspective but also in the supra-system context (Sagy & Sarid, 2015). The idea that the SOC concept should be broadened to larger levels than individuals has been suggested and discussed by Sagy and Antonovsky (Sagy, 1990; Antonovsky, 1992; Sagy & Antonovsky, 1992). It is beyond the scope of this paper to

include this extensive discussion. In this chapter, we review some studies that link the SOC of the collective to intergroup and social relations.

The concept of community sense of coherence (CSOC) was developed as related to a specific in-group and not to the "global orientation of the world" as it is defined for individual SOC. It constitutes the three components of SOC: comprehensibility, manageability, and meaningfulness (Braun-Lewensohn & Sagy, 2011; Elfassi, Braun-Lewensohn, Krumer-Nevo, & Sagy, 2016; Peled, Sagy, & Braun-Lewensohn, 2013; Sagy, 1998). Community comprehensibility relates to the perception that life in one's community is predictable, safe, and secure and that one's community is a place which is known and understood. Community manageability relates to the perception that one's community can assist its members, is available to them, and meets their demands and needs. Lastly, community meaningfulness relates to perception that the community gives meaning to its members, provides challenges, and is worthy of investment and engagement.

Indeed, most of the research which investigated the concept of CSOC has focused on its relationship with well-being and resilience. Just recently, however, a few studies have attempted to connect salutogenesis and SOC to other social concepts such as intergroup relations, openness toward the "other" and readiness to reconcile (Mana, Sagy, & Srour, 2015; Sagy, 2014; Srour, 2015). These studies connect the salutogenic paradigm with other interdisciplinary models and concepts such as social identity (Tajfel, 1981), acculturation (Berry, 1990), conflict studies (Bar-Tal, 1998), or peace and reconciliation (Nadler, 2012).

Most of these new studies examined the relationship between CSOC and intergroup relations. The relations between the conflicted groups were examined by the levels of adherence to in-group as well as acceptance of the out-group collective narratives and acculturation attitudes. One of the studies was conducted among Palestinian Muslims and Christians in Israel (Mana et al., 2015). The results revealed that strong community sense of coherence (CSOC) was correlated with higher levels of acceptance of the in-group collective narrative and with lower levels of acceptance of the out-group collective narratives. Community sense of coherence was also related to higher levels of a tendency to adopt a separation strategy between the two groups in conflict. The authors based their explanation on a wide range of studies in social psychology which suggest that group members, who believe that their own group and its products are superior to other groups, are prone to behaviorally discriminate against other groups (e.g., Bizumic & Duckitt, 2009). This notion was well established in the work of Tajfel (1981) who analyzed three cognitive aspects of prejudice: the process of categorization, which gives shape to intergroup attitudes, the process of assimilation of social values and norms which provides their content, and sense of coherence, as a main cognitive aspect which relates to the way individuals react to specific intergroup situations. Following Tajfel's paradigm, a strong CSOC enables group members to deal with changes that occur in intergroup situations. In order to deal with these changes, an individual must make constant attributions that help him deal with the new situations in a manner that appears consistent to him and preserves his self-image and integrity. The individual needs to build a cognitive structure which provides him with a satisfactory explanation of the causes of changes. However, an improved group position is often achieved by using the group's capacity to put another group at a disadvantage and derives largely from biased comparisons on salient dimensions that are favorable to the in-group and unfavorable to the out-group (Tajfel, 1981).

A wider concept recently suggested by Sagy (2014) relates to national sense of coherence (NSOC). Two studies are presently being conducted among Israeli–Jews and Israeli–Arabs. The initial results indicate a strong negative correlation between strong NSOC and level of openness to the narrative of the "other" group. Strong NSOC was also found as negatively related to readiness to reconcile with the "other" among Israeli Jewish students (Sagy & Sarid, 2015).

These studies pose different salutogenic questions which do not concern SOC/health but SOC/social relations. The interdisciplinary salutogenic questions in these studies are: How does a collective with a strong SOC perceive, feel, or behave toward the "other"? Is the tendency of a group to perceive its world as comprehensible, meaningful, and manageable related to greater openness to the "other," or does it involve clinging to the rigid in-group identity and less openness toward the "other"? Is an individual, a group, a collective, or a system with a stronger SOC more likely to live in peace/justice/good relations with their surroundings?

To sum up, while there is a broad consensus regarding the contribution of SOC to health and well-being, the role of SOC—both of the individual or the collective—in social relations has been mostly neglected. We maintain that one of the reasons for this neglect lies in the initial excitement of Antonovsky and his followers about study the SOC/health connection. Times have changed and interdisciplinarity seems to be the challenge of our era. In this chapter, we have attempted to review the small body of research which asks other salutogenic questions relating SOC to other interdisciplinary concepts.

We believe that more research is needed in order to gain a deeper understanding of these initial answers. Moreover, interdisciplinarity can also lead to employing other salutogenic concepts—rather than SOC—to give answers to salutogenic questions. So we suggest that salutogenic researchers in the future not only ask new salutogenic questions but also develop new salutogenic concepts in the

attempt to broaden and deepen our understanding of the paradigm. We hope that this chapter succeeds in posing this new challenge.

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Positive Psychology in the Context of Salutogenesis

Stephen Joseph and Shifra Sagy

Introduction

The advent of contemporary positive psychology can be traced back to Martin E. P. Seligman's Presidential Address to the American Psychological Association (APA). In that address he told his own story of changing direction. Following a moment of epiphany when gardening with his daughter Nikki, he realised that psychology had largely neglected the latter two of its three pre-World War II missions: curing mental illness, helping all people to lead more productive and fulfilling lives, and identifying and nurturing high talent. With this realisation, Seligman resolved to use his APA presidency to initiate a shift in psychology's focus towards a more positive psychology (Seligman, 2004). This presidential initiative was catalysed through a series of meetings with both junior and senior scholars who would become the leading voices of the new positive psychology movement, and who began to map out what they saw as a positive psychology research agenda. This was followed by the hugely influential January 2000 special issue of the *American Psychologist* on positive psychology in which Seligman and Csikszentimihalyi (2000) wrote:

> "The aim of positive psychology is to begin to catalyze a change in the focus of psychology from preoccupation only with repairing the worst things in life to also building positive qualities" (Seligman & Csikszentmihalyi, 2000, p. 5).

That special issue provided a broad vista of topics that were deemed to be covered under the positive psychology umbrella and included articles on happiness, individual development, subjective well-being, optimism, self-determination

theory, adaptive mental mechanisms, emotions and health, wisdom, excellence, creativity, giftedness, and positive youth development. From these beginnings, positive psychology has flourished.

Positive Psychology and Salutogenesis

The positive psychology movement has produced new conceptual frameworks, instruments to measure human strengths, and increased interest in topics such as optimism, hope, locus of control, creativity, self-esteem, emotional intelligence, empathy, humour, and gratitude (Linley, Joseph, Harrington, & Wood, 2006; Lopez & Snyder, 2003). Positive psychologists have also endeavoured to apply this new work in educational, health, and workplace contexts (Joseph, 2015a). Moreover, community researchers and public policy planners have suggested transforming positive psychology from an individual level to a societal level as well (Pavot & Diener, 2004).

However, despite the feeling of innovation, it has also become clear that positive psychology has had a much longer past and might even be traced back to the origins of psychology itself, like William James' writings on "healthy mindedness" (James, 1902). Positive psychology also shares a common heritage with parts of humanistic psychology and the writings of Abraham Maslow and Carl Rogers, in particular. These alternative beginnings to positive psychology are now well recognised (Robbins, 2015). However, much less well acknowledged in positive psychology is the heritage of the salutogenic paradigm first suggested by Antonovsky in his book *Health, Stress and Coping* (Antonovsky, 1979).

At first glance it would seem that the relatively new field of positive psychology had much in common with the earlier approach of salutogenesis. Interestingly, however, the concept of salutogenesis has received relatively little attention within the positive psychology literature. For example, in the 2004 edition of *Positive Psychology in Practice*

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(Linley & Joseph, 2004) there was no reference to salutogenesis in the book's subject index. Likewise, in the textbook *A Primer in Positive Psychology* (Peterson, 2006), it is similarly not indexed. There are exceptions—such as in Csikszentmihalyi and Csikszentmihalyi's (2006) edited book *A Life Worth Living: Contributions to Positive Psychology*—where a reference to salutogenesis comes half way through the book in the chapter by Antonella Delle Fave of the University of Milan on subjective experience and quality of life (Delle Fave, 2006). Delle Fave briefly notes the salutogenic approach. So it is not that the concept of salutogenesis has been invisible to positive psychologists, but rather that it has not achieved prominence as a framework for theory and research. How can this lack of attention to the concept of salutogenesis be explained? Our answer might be that the salutogenic theory originated in a different discipline than psychology: in medical sociology and—although subsequent applications have been more widespread—the concept has never been fully embraced by psychologists.

In this chapter, however, we attempt to reflect on the conceptualisation of positive psychology in light of Antonovsky's theory of salutogenisis. Furthermore, we consider how Antonovsky's core concept, the Sense of Coherence, provides a new framework for understanding the operation of positive psychology constructs.

Both positive psychology and the salutogenic paradigm challenged mainstream thought about the pathological focus of sociology in the 1970s, and psychology in the 2000s respectively, to consider the resources of healthy functioning. In this regard, both approaches seem to be adopting the same view. However, there was a difference between the two approaches. As clinical psychology had traditionally adopted diagnostic language and a focus on pathology, positive psychology turned its attention to the normal category and positive functioning, and by doing so implicitly condoned the dichotomy between the normal and the abnormal (Joseph & Linley, 2006). Antonovsky's salutogenesis paradigm, on the other hand, offered a new definition of the ease–dis-ease continuum in the medical discipline, thus dissolving the dichotomy between illness and wellness (Antonovsky, 1979).

The argument of positive psychology was that insufficient attention had been paid to the positive side of human experience. The weight of psychological research had been on pathological functioning. This led researchers to turn their attention to strengths of character, talents, and abilities and what makes for a healthy and happy life. This new focus challenged the mainstream to shift its attention so that new research would be conducted alongside traditional research. As Folkman and Moskowitz (2003) said:

"…those who advocate the study of positive aspects of psychology do not intend that it replace concern with its negative aspects. What appears to be an overemphasis may instead be indicative of a catch-up phase for an area that has been underemphasized in recent years" (Folkman & Moskowitz, 2003, p. 121).

Such a position provided a clear vision for the investigation of the positive alongside the negative. Csikszentmihalyi (2003), referring to his and his collaborators' pioneering efforts, provided an argument for studying the positive relatively independently of the negative:

"Basically, we intended to do our best to legitimize the study of positive aspects of human experience in their own right—not just as tools for prevention, coping, health, or some other desirable outcome. We felt that as long as hope, courage, optimism, and joy are viewed simply as useful in reducing pathology, we will never go beyond the homeostatic point of repose and begin to understand those qualities that make life worth living in the first place". (Csikszentmihalyi, 2003, pp. 113–114)

Positive psychology has since developed into a distinct discipline in its own right. There have been new handbooks, textbooks, and dedicated university level courses in positive psychology. In addition, there are now biannual positive psychology conferences held by the *International Positive Psychology Association* and the *European Network for Positive Psychology*, together with a host of conference themes and sections dedicated to positive psychology. As such, the momentum of the positive psychology movement seems to be directed towards deliberately studying well-being in and of itself. Despite this, there are some who have expressed concern that to separate the positive from the negative may be counterproductive (e.g.Pauwels, 2015).

What is potentially more valuable is to understand the relations between the positive and the negative, comprehending that the role of positive psychology should be to transform how we conceptualise human experience.

In the positive psychology movement, some have explicitly called for the integration of the positive and negative (Joseph, 2015b) with a vision of how positive psychology could transform the agenda of mainstream psychology by looking for ways to dissolve the boundaries between the positive and the negative. The danger of positive psychology now is that its existence serves to condone the separation of the positive and the negative. Thus, rather than serving as a transformational force, it maintains the status quo. Seen this way, it seems misleading to talk of positive psychology as challenging the mainstream pathological agenda of psychology. Moreover, by focusing on positive experiences only, it sends out a contradictory message that the positive is separable from the negative, and while worth studying in its own right, the necessity remains for disciplines of psychology committed to the negative. Thus, ironically, positive psychology strengthens the dichotomy between the positive and the negative.

It becomes clear then that the concept of salutogenesis offers an alternative basic theory and conceptual framework.

In his proposal, Antonovsky (1979) claims that health and illness should be viewed not as a dichotomy, but as a continuum. Human environments by their very nature are stressor-rich, whether microbiological, personal, economic, social, or geopolitical. As such, the human being inhabits a world in which it is impossible to avoid stressors and the normal state of the human organism is one of entropy, disorder, and disruption of homeostasis.

The basic philosophical assumption of the salutogenic theory is that, instead of perceiving the human system as one which is sound unless it is attacked by some pathogen, the human system is viewed as basically unsound, continuously attacked by disturbing processes and elements which cannot be prevented. This basic assumption is different than the basic philosophical premises of much positive psychology.

Salutogenesis challenges the dominant pathogenic paradigm, but in a different way than the positive psychology movement. Rather than thinking about people as either healthy or diseased, it opens the way for thinking about health and disease along a continuum that goes from "health ease" to "dis-ease". In such an approach, no one is categorised as healthy or diseased. All people are somewhere between the imaginary poles of total wellness and total illness. Even the fully robust, energetic, symptom-free, richly functioning individual has the mark of mortality: he/she wears glasses, has moments of depression, comes down with flu, and may also have as yet non-detectable malignant cells. Even the terminal patient's brain and emotions may be fully functional. The great majority of us are somewhere between the two poles. Priority in service is justly given to those at the sicker end of the continuum, but all persons become the focus for research and intervention. Wherever they are on the continuum, there is the possibility of further movement towards the healthy pole.

Moreover, assuming that stressors are ubiquitous, and that there is a continuum of ease–dis-ease, our focus shifts from asking how to eradicate this or that stressor to how to facilitate becoming healthier. Thus, salutogenesis offers a brand new challenge to positive psychology to rethink its stance in relation to the negative. It might suggest that positive psychology consider the implementation of its concepts at all points along the spectrum of dis-ease to well-being. To deepen this direction, we turn to Antonovsky's concept of Sense of Coherence (SOC).

Sense of Coherence and Positive Psychology

Positive psychologists may be more familiar with the SOC concept than with the broader salutogenic theory itself. However, many of them misunderstand it as a personality disposition or as a coping style. Actually, the concept of SOC has been developed as a concept on a higher level of abstraction, as a worldview. It provides us with a powerful concept to predict health (Eriksson & Lindström, 2011), but yet underutilised. What positive psychology still misses is a theoretical framework for understanding how the range of positive psychological variables, such as optimism, gratitude, forgiveness, curiosity, and others, that are routinely studied as predictors of health and happiness, exert their effect.

It has become apparent in positive psychology that although some concepts seem to be more generally thought of as 'positive' than others, whether or not any such factor is related to well-being depends on the context. To illustrate, a trait such as optimism is generally considered a psychological ingredient that contributes to well-being. It may be that optimistic people are better able to cope with stress, for example. So, in a stressful context, optimism plays a beneficial moderating role. But, in another context it could be that optimism impedes well-being. For example, more optimistic people may adopt more reckless investment strategies. As such, it is likely that many psychological traits and processes are neither inherently positive nor negative, but only positive or negative in their effect with regard to specific circumstances.

On a different level of abstraction, SOC refers not to a special set of traits or coping strategies but rather to the mediational mechanism through which all other factors exert their influence on health and well-being. Personal and social resources can build comprehensibility, manageability, and meaningfulness of any given situation, allowing us to cope with the ubiquitous stressors of life, thus promoting well-being in the never ending struggle against entropy. On the other hand, those factors that make demands on comprehensibility, manageability, and meaningfulness, leave us vulnerable to the effects of entropy.

Regarding the development of SOC, Antonovsky (1987) suggested that at a certain age (30 years old) people have developed a fairly consistent SOC, although recent studies suggest that unexpected traumatic events can challenge our SOC, requiring us to rebuild a new SOC in light of our experiences (Antonovsky & Sagy, 1986; Bental-Israeli & Sagy, 2010).

In the past two decades, positive psychology has fuelled interest in post-traumatic growth (Joseph, 2011). Post-traumatic growth is a wide-ranging concept, still in development, but to date three broad domains of positive change have been noted that best describe the ways people often report that they have been changed following trauma. Firstly, relationships are enhanced in some way. For example, people describe that they come to value their friends and family more, feel an increased sense of compassion for others, and a longing for more intimate relationships. Secondly, people change their views of themselves in some way,

for example that they have a greater sense of personal resiliency, wisdom, and strength, perhaps coupled with a greater acceptance of their vulnerabilities and limitations. Thirdly, people describe changes in their life philosophy, for example finding a fresh appreciation for each new day and re-evaluating their understanding of what really matters in life.

Positive changes are widely reported by people following trauma. Using psychometric measures and open-ended interviews, a large number of studies have shown that growth is commonly reported by survivors of various traumatic events, including transportation accidents (shipping disasters, plane crashes, and car accidents), natural disasters (hurricanes and earthquakes), interpersonal experiences (combat, rape, sexual assault, and child abuse), medical problems (cancer, heart attack, brain injury, spinal cord injury, HIV/AIDS, leukaemia, rheumatoid arthritis, multiple sclerosis, and illness), and other life experiences (relationship breakdown, parental divorce, bereavement, and immigration). Typically 30–70 % of survivors will say that they have experienced positive changes of one form or another (Joseph, 2011).

Moreover, research indicates that greater post-traumatic growth is associated with personality factors such as emotional stability, extraversion, openness to experience, optimism, and self-esteem; ways of coping such as acceptance, positive reframing, seeking social support, turning to religion, problem solving, and social support factors (Joseph, 2011). Such a framework can be applied with the aim of understanding how positive psychological constructs may be beneficial, but the area where this framework seems most clearly applicable is in how people overcome and grow personally following adversity.

A Salutogenic Positive Psychology

The aim of our chapter is to promote bridge building between the paradigm of salutogenesis and the movement of positive psychology, and to suggest a joint conceptual framework of salutogenic positive psychology. We trust that despite the differences between the two paradigms, an integrative approach could contribute to deeper understanding of both approaches.

One contribution of the integrative approach relates to the role of sociological factors in explaining SOC development as well as other positive psychological concepts. In contrast to the common purely positive psychological view, Antonovsky (1991, 1993) attempted, within a systems theory framework, to analyse how *social structures* shape the strength of the SOC. He claimed that to disregard the power of history, the generational experiences of the macro-political events of war and depression, population shifts,

and revolutions are to disregard the context within which the strength of each of us is shaped. Indeed, early socialisation has been discussed in psychological theories and experiences in the family have been considered as crucial. But these experiences are themselves shaped by the broader social structure which is usually ignored. Socioeconomic status and educational levels have been shown to be important factors in building strong SOC (Sagy & Antonovsky, 2000; Madarasova Geckova, Tavel, van Dijk, Abel, & Reijneveld, 2010).

The implication of these analyses for salutogenically oriented clinicians could lead to interventions such as active participation in transforming environmental conditions. It certainly seems reasonable to hypothesise that one who sees life as comprehensible, manageable, and meaningful is more likely to optimally exploit potential resistance resources. This approach can also help us to theoretically explain why some prevention programmes or health promotion plans tend to work well for some people but not as well for others (Sagy, 2014).

As such, we envisage that well-being is the product of trauma and other life events, positive psychology factors, and the social structure. However, in each case, the relationship with well-being is mediated by SOC (see Fig. 10.1). Moreover, the possibility exists that each of these relationships is moderated by the other factors, such that, for example positive psychological factors are only related to well-being in specific social structures or at particular levels of trauma.

The salutogenic positive psychology framework could contribute to the understanding of traumatic experience by the interaction of a variety of concepts related to personality, tendencies, and strategies of coping together with sociological factors. These different factors could, for example jointly predict post-traumatic growth, while the SOC could be the mediator/moderator in these interactions.

Thus, we can view post-traumatic growth as a description of those positive changes that arise through the resolution and rebuilding of the person's SOC and the resultant post-traumatic distress that this process entails. The salutogenic positive psychology perspective allows us to develop an understanding of potential traumatic experiences which integrates post-traumatic distress and post-traumatic growth within a single conceptual framework. This new integrative perspective could also guide clinical practice to develop interventions which promote SOC among trauma survivors.

Conclusion

It appears that despite their different theoretical roots, the integration of the two paradigms—salutogenesis and positive psychology—have stronger explanatory power in

Fig. 10.1 The relationship between positive psychology constructs and well-being is hypothesised to be mediated by SOC
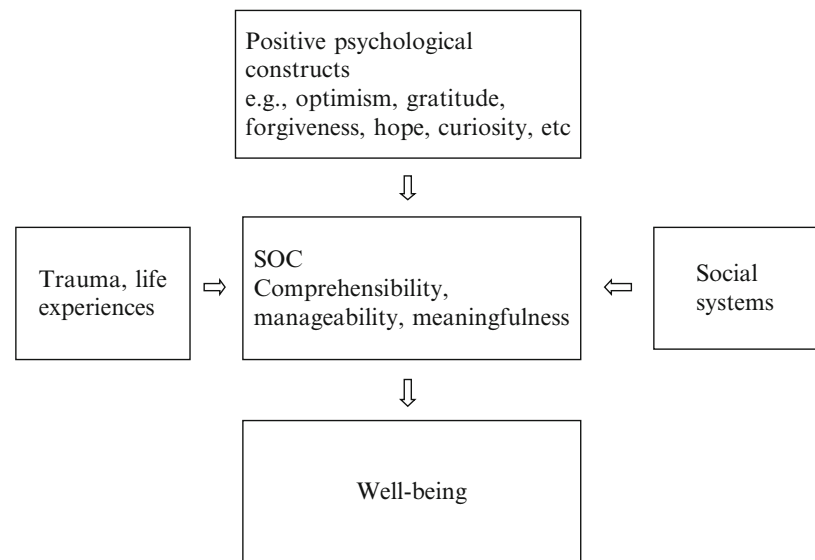
promoting health and well-being. We trust that positive psychologists will benefit from a deeper appreciation of the SOC construct in two ways: firstly, in understanding how social structures shape the strength of SOC; and secondly, in how SOC provides the cognitive mechanisms within the individual that mediates the relationship between positive psychology constructs such as hope, optimism, gratitude, and well-being. Finally, there are two ways in which salutogenic researchers can benefit from positive psychology. Firstly, positive psychology offers a new and evidence-based means for putting salutogenesis into practice at both micro- and macro-levels. However, the second and most important contribution of positive psychology is in reminding salutogenic researchers that their evaluation of outcomes related to SOC need not be pathological. We need to move beyond outcomes such as the absence of depression, reduction in hostility, and the like, to include the presence of happiness, development of empathy, and more. In this way, we begin to see greater convergence between the two disciplines and the emergence of a salutogenic positive psychology.

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Monica Eriksson

Introduction

The aim of this section is to shortly describe the theoretical framework of salutogenesis with a special focus on the key concepts, the sense of coherence and the generalized and specific resistance resources. This chapter begins with reflection on the ontological and epistemological background of salutogenesis, which is not particularly described and explained to any significant extent in the publications by Antonovsky (1979, 1987). More recent research on this theme is scarce. Next, health as a process is described by starting from Antonovsky's definition of salutogenesis as a movement toward the health end of a health continuum. The chapter ends with some evidence of how the sense of coherence impacts health and well-being.

The Ontological Background

Ontology is the study of reality (Heil, 2005). What do we know about the ontological background of salutogenesis? In his second book, *Unraveling the Mystery of Health* (1987), Antonovsky described how he perceived the world. Two important things stand: (1) he saw man in interaction with his environment and (2) chaos and change is a normal state of life. The former calls for system theory thinking where the focus is on the individual in a context (Antonovsky, 1985). By the latter, he perceived daily life as constantly changing; a heterostatic as opposed to a homeostatic state. For the individual, the challenge is to manage the chaos and find strategies and resources available for coping with the changes in everyday life. As a medical sociologist, this was

a natural way for Antonovsky to perceive the world: seeing humans as part of a larger context.

In the beginning of the 1990s, Aaron Antonovsky published an article about the six Cs: complexity, conflict, chaos, coherence, coercion, and civility (Fig. 11.1). Here, he expressed how he looked at society and the human being in that context (Antonovsky, 1993a). As a medical sociologist, he distinctly expressed systems theory thinking. He saw the individual in interaction with the environment and context. He stressed that the salutogenic theory and its key concept, sense of coherence, can be applied at a collective level, and not only with a focus on the individual level.

Complexity, according to Antonovsky, related to how a system is organized:

Complexity refers to the level of organisation of a system. This level both sets the problems and provides the potential, interacting with sub and suprasystem, for the system to maintain a dynamic steady state. Such a steady state is one way of defining health. (Antonovsky, 1993a, s. 969)

Complexity may lead to conflicts, the greater the complexity, the deeper the conflicts. He especially mentioned conflict between civilizations:

Conflict refers to internal tensions of the human being, to tensions between persons, to tensions between the individual and the suprasystems of which she or he is a part, and to tensions between or among such suprasystems. (Antonovsky, 1993a, s. 970)

Complexity also offers opportunities for different and flexible choices, possibilities for adapting to change, and possibilities for systems (communities) to reorganize themselves. Conflict leads to tension; therefore, it will be crucial for the community how we can deal with this tension and avoid stress. Chaos can be exemplified as violence and war, and the image of young men and women equipped with weapons, trying to solve conflicts with even more violence, a senseless and unpredictable violence (Antonovsky, 1993a, p. 972). The difficulties in resolving conflicts go from a societal level to the group level, to families torn apart, and

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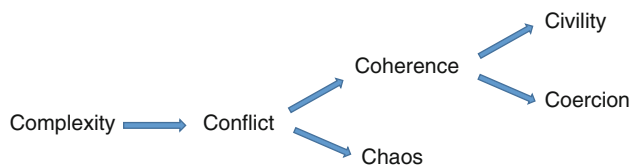
Fig. 11.1 The six Cs—an ontological perspective on salutogenesis. After Antonovsky, 1993a, p. 969. Published with permission from the copyright holder and Social Science and Medicine

where children, women, and the elderly are particularly vulnerable. As opposed to this chaos, Antonovsky raised another way to go, to coherence. Sense of coherence is the term he introduced as an opportunity to manage and adapt to a life of chaos. Two important dimensions in Fig. 11.1 remain to be explained: civility and coercion.

Civility is one of the basic values of salutogenesis, a value that informs how we relate to other people, how we look at them as either people with different strengths and abilities, or people with flaws and shortcomings. Civility is about respect toward other people and about the humanity we communicate. Antonovsky discussed humanity and values in terms of respect toward other people, or to used his own words, "*The key lies in a society and in people who cares about each other*" (Antonovsky, 1993c, p. 2). The opposite of civility and respect is coercion. A society based on respect for people also requires restrictions against domination, oppression, and poverty (Antonovsky, 1993a, p. 973). More recent research in the salutogenic field highlights a new concept of reasonableness (Boström, Kaplan, & Kaplan, 2014; Kaplan & Kaplan, 2003, 2011), which brings together the supporting factors in the environment of perceived health and well-being in a particular model, The Reasonable Person Model. Kaplan and Kaplan (2003) describe how people are more respectful, cooperative and more contented in situations where the environment supports their basic information needs. The model focuses on how people are interdependent. It emphasizes three dimensions that contribute to civility, namely a curiosity to explore and understand, meaningful activities, and recovery. The concept of reasonableness has similarities with the dimensions of the sense of coherence: comprehensibility, meaningfulness, and manageability.

The Epistemological Background

Epistemology is the study of knowledge (Audi, 2011). Going back to Antonovsky's two books *Health, Stress and Coping* and *Unraveling the Mystery of Health*, one can find little insight into how he considered knowledge and learning. As far as this author knows, he did not manifest an epistemological basis for salutogenesis, neither describing his view of

how knowledge in general arises, nor how learning is meaningful in the salutogenic framework. It appears that he was preoccupied with examining and describing how a strong sense of coherence may have an impact on perceived health. A search in different databases provides little response. Yet others have focused on knowledge and learning aspects of salutogenesis, related for example to the education of children with special needs (Lindström, 1999) and to children with learning difficulties (Lackaye & Margalit, 2006; Margalit & Efrati, 1996).

More generally, Nilsson and Lindström (1998) describe how learning can be considered a health promotion process, not only to learn about health, but that the learning process also promotes health. By combining educational theories and salutogenesis, they describe 'the salutogenic school' (Antonovsky, 1993c, p. 5), achieved by creating meaningful learning situations, clear structures for curricula and the school work, with dedicated teachers supporting each other and the students, and being role models.

Boström and Lassen (2006) point out the importance of giving space for individual ways of learning and different learning strategies. Individual learning styles create opportunities for students to find meaning in school. A new concept that describes learning as a health promotion process is 'healthy learning' (Lindström & Eriksson, 2011). It means to move on from traditional health education, through to increased health awareness (health literacy), and on to learning which actually promotes health (Lindström & Eriksson, 2011; Quennerstedt, 2006; Quennerstedt, Burrows, & Maivorsdotter, 2010). As an example, the curriculum for health education in Australia has recently been revised and now adopts a strength-based (salutogenic) approach (Macdonald, 2013; McCuaig, Quennerstedt, & Macdonald, 2013). The curriculum focuses on promoting sound health habits, instead of the earlier focus on avoiding health risks. Health is understood as a multidimensional concept including physical, social, mental, and spiritual health. Health is regarded as a lifelong dynamic process with people as active participants in a context. Finally, health is seen not as an end in itself but as a means to live a good life (McCuaig et al., 2013, p. 113). As another example, from Germany, an attempt to apply salutogenesis didactically in education is the 'team ombuds model'—tOm (Mayer & Boness, 2011), developed to promote the sense of coherence and cross-cultural competence among students and teachers.

Epistemologically, salutogenesis can be conceived as a constant learning process (Fig. 11.2) supporting movement toward health (and other desired aspects of one's existence) via improving health literacy: knowledge supports health literacy, which supports development in the ways one relates to one's world. The process of relating to others produces learning, and the knowledge gained from practice expands

one's area of knowledge. In the course of daily life, this integrated learning process is continuous.

Health as a Process

According to Antonovsky, health is movement on a continuum of ease and dis-ease (Antonovsky, 1993b). He referred to the ability to comprehend the whole situation, and the capacity to use the resources available, as the sense of coherence. This capacity was a combination of peoples' ability to assess and understand the situation they were in, to find a meaning to move in a health promoting direction, also having the capacity to do so—that is, comprehensibility, meaningfulness, and the manageability, to use Antonovsky's own terms (Lindström & Eriksson, 2005). In such an approach, no one is categorized as healthy or diseased. Since we are all somewhere between the imaginary poles of total wellness and total illness, the whole population becomes the focus of concern. Even the fully robust,

energetic, symptom-free, richly functioning individual has the mark of mortality: he or she wears glasses, has moments of depression, comes down with flu, and may also have as yet non-detectable malignant cells. Even the terminal patient's brain and emotions may be fully functional. The great majority of us are somewhere between the two poles. Priority in health service is justly given to those at the sicker end of the continuum. But in our thinking and our research, we should ask: "How does a person—wherever he or she is on the continuum—move toward the healthy pole?" (Sagy, Eriksson, & Braun-Lewensohn, 2015). The idea of movement along an ease/dis-ease continuum is illustrated in Fig. 11.3.

Antonovsky assumed that we constantly are exposed to changes and events that may be considered as stressors. This may involve major life events such as when someone in the family falls ill, changes in the family (e.g., a divorce), or changes in the workplace (organizational changes or unemployment). Previous research shows that such major life events affect health (Folkman, 1984). They can reduce health temporarily but can also in the longer term strengthen us in a way that makes it possible for us to manage stress. The negative life events have even given us experiences that can be used in other similar situations.

Antonovsky discussed the theories behind stress and coping extensively. He particularly rejected the thoughts behind Lazarus' cognitive theory on stress and coping as well as theories of life event (Lazarus & Folkman, 1984). According to Antonovsky, the assumption behind these theories was a life in balance, that is, a homeostatic life. A disturbance was assumed to damage the balance and damage health and well-being, that is, a pathogenic view of life. Furthermore, the traditional theories on stress and coping are mainly focused on the concept of control. In salutogenesis, the emphasis is on the person's ability to use generalized resistance resources, both internal and external, at disposal to manage ubiquitous stressful situations. The actual starting point, according to Antonovsky, is that life is a chaos in which we must constantly relate to change. It becomes vital how
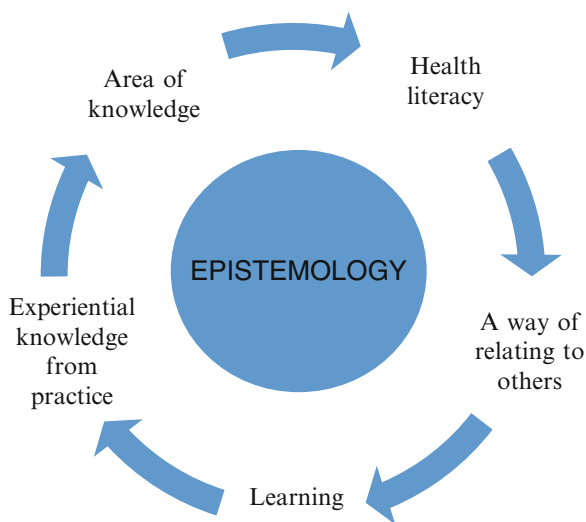
Fig. 11.2 Salutogenesis from an epistemological perspective

Fig. 11.3 The ease/dis-ease continuum (Antonovsky, 1979, 1987). Graphic: Bengt Lindström, Monica Eriksson, Peter Wikström (Lindström & Eriksson, 2010)
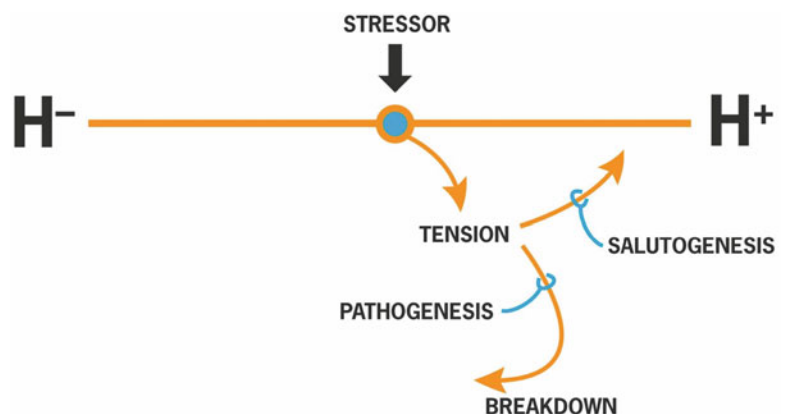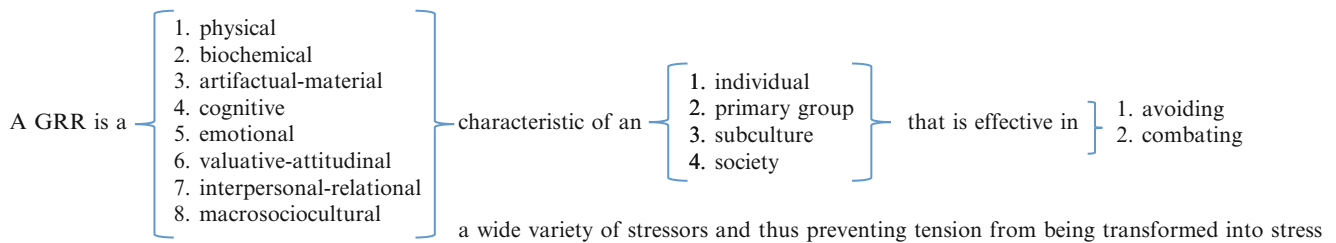
Fig. 11.4 The definition of generalized resistance resources (Antonovsky, 1979, s. 103)

we are able to manage this chaos. This is the salutogenic view of stress and coping, according to Antonovsky:

> . . . life is inherently full of stressors, with life-situation stressor complexes by far deserving most of our attention of we wish to understand either health or disease. Focusing on health, I expressly rejected the implicit assumption that stressors are inherently pathogenic. Their health consequences can only be understood if we understand the coping process. (Antonovsky, 1992, p. 48)

Three potential reactions and outcomes of stress are (1) being neutral against the stressors, (2) being able to manage stress for the movement toward the health end, and (3) being unable to manage stress which leads to a breakdown expressed in terms of diseases and death (Antonovsky, 1987). In the case of events that do not concern us as much, that is, daily hassles to use the words by Antonovsky (1987), we can remain neutral to them, since they do not affect health in any significant way. However, if it is a question of events that we cannot manage, we become ill, or we to mobilize internal and/or external resources around us, allowing us to deal with what happened and move in the direction of health.

Generalized and Specific Resistance Resources

Along with the sense of coherence, a key concept in the salutogenic model is resistance resources (Antonovsky, 1979, 1987), including generalized resources (potentially available for engagement in a wide range of circumstances) and specialized resources (particular resources relevant to particular circumstances). Since the subject of resistance resources is dealt with in detail in several chapters in Part II of this book, only a few comments are offered here, with special attention to the relevance of resistance resources to the main subject of this Section: the sense of coherence.

Generalized resistance resources are *the* cornerstones in the development of a strong sense of coherence. They are of a different nature: genetic and constitutional, psychosocial, cultural and spiritual, material... and a preventive health orientation (Lindström & Eriksson, 2005). Resistance resources exist at the individual, the group (family), the subculture and the whole society levels (Antonovsky,

1979, p. 103). Antonovsky's formal definition of generalized resistance resources is given in Fig. 11.4.

Research on the role of generalized resistance resources in building the sense of coherence is scarce. Early research (Antonovsky, 1991, cited in Sagy & Antonovsky, 1999, p. 256) showed that three factors seemed to be particularly important for developing a strong sense of coherence: consistency, balance between under- and over-load and the opportunity to participate in decision making affect one's situation. The question of which resistance resources are involved in building the sense of coherence has received some attention, as for example in these:

- A Finnish study examined the importance of generalized resistance resources such as cognitive ability, marital status, level of family income, the length of formal education and physical activity for the development of a strong sense of coherence among Finns aged 65–69 years (Read, Aunola, Feldt, Leinonen, & Ruoppila, 2005). The results showed that cognitive ability and physical activity were related to the sense of coherence, which in turn was associated with good social and mental health.
- A qualitative Swedish study of caregivers to older adults aimed to illuminate generalized and specific resistance resources against caregiver stress; it identified the panoply of negative and positive experiences of caring for a relative as a particularly salient resource—'caregivinghood,' as in the sense of 'parenthood' (Wennerberg, Lundgren, & Danielson, 2012).
- Through a thematic analysis of the work by Antonovsky and more recent research Griffiths, Ryan, and Foster (2011, p. 170) identified 15 general resistant resource themes (1) structure in life, (2) predictability in life, (3) social support, (4) coping strategies, (5) life meaning, (6) responsibility, (7) comprehension, (8) expression of confidence, (9) challenges worth investing time and effort, (10) health/illness, (11) future orientation, (12) past orientation, (13) positive, solution focused outlook, (14) emotional connection, and (15) ensuring that you are justly treated. No resource related theme emerged that did not fit the sense of coherence concept.

Sense of Coherence

Antonovsky initiated a study among different ethnic groups of women in Israel with the aim to investigate their menopausal symptoms, that is, a traditional epidemiological study from a risk perspective (Antonovsky, 1987). He interviewed them about perceived health, and also about various life events affecting them, such as losing their eyesight, loss of husband/wife, amputation of the leg/arm or to have suffered a serious illness (Antonovsky, 1983). After analyzing the interviews, he found that 29 % of the women reported good health, although they survived the Holocaust. Antonovsky raised the question of how it could be possible that women may experience good health despite the fact that they experienced such a difficult trauma as the Holocaust. It led him to focus on this small number of respondents, and a search for their health resources. This was the start of Antonovsky's personal paradigm shift from pathogenesis to salutogenesis.

Based on the interviews with the Israeli women, an important factor emerged: the sense of coherence. The sense of coherence reflects a person's view of life and capacity to respond to stressful situations. It is a global orientation to view life as structured, manageable, and meaningful. It is a personal way of thinking, being and acting, with an inner trust, which leads people to identify, benefit, use, and re-use the resources at their disposal (Eriksson & Lindström, 2006). Sense of coherence consists of three elements: comprehensibility, manageability, and meaningfulness. The original definition by Antonovsky (1987) is as follows:

> a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement. (p. 19)

It is also about one's own ability to identify one's internal and external resources and use them in a way that promotes health and well-being (Eriksson & Lindström, 2006). Further, it is a way of thinking in terms of peoples' resources, and even a way to work, to meet and treat other people. According to Antonovsky, sense of coherence is a life orientation. Koltko-Rivera (2004) defines life orientation as follows:

> … a way of describing the universe and life within it, both in terms of what is and what ought to be. A given worldview is a set of beliefs that includes limiting statements and assumptions regarding what exists and what does not. … A worldview defines what can be known or done in the world, and how it can be known or done. … What goals can be sought in life … defines what goals should be pursued. (Koltko-Rivera, 2004, p. 4)

It is to the nature of the life orientation that is termed 'the sense of coherence' that this Part of the book is devoted. Inevitably, the sense of coherence is also a theme, major or minor, in virtually every chapter of this book. The sense of coherence was Antonovsky's main interest in his study of salutogenesis, even if he encouraged research on all aspects of the salutogenic model. Following Antonovsky's whole-hearted lead, succeeding generations of scholars have focused so much on the study of the sense of coherence that the salutogenic model is sometimes referred to as the 'sense of coherence theory.' While Antonovsky did not himself define sense of coherence as a theory, it was his answer to the salutogenic question: what are the origins of health? He encouraged a search for other answers, but as this book reveals, most salutogenesis researchers have chosen to follow the path to the sense of coherence, the path that Antonovsky himself so doggedly trod.

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Monica Eriksson and Maurice B. Mittelmark

Introduction

Antonovsky (1987) developed a questionnaire to measure the sense of coherence. The original form, the Orientation to Life Questionnaire, consists of 29 items, 11 items measuring comprehensibility, 10 items measuring manageability, and 8 items measuring meaningfulness. The response alternatives are a semantic scale of 1 point to 7 points, where 1 and 7 indicate extreme feelings about questions (and statements) about how one's life is experienced (e.g., 'when you talk to people, do you have the feeling that they do not understand you?' is scored from 1 = never have this feeling to 7 = always have this feeling). The questionnaire is a summed index with a total score ranging from 29 to 203 points for the original scale of 29 questions (SOC-29). A shorter version of 13 questions (SOC-13) of the original form was developed by Antonovsky (1987), where the score ranges between 13 and 91 points. Antonovsky intended that the sense of coherence scales be scored with a single total score and not component scores (Fig. 12.1), since he theorized that it was the sense of coherence in its totality that influenced movement along the ease/dis-ease continuum. This issue is taken up again later in this chapter.

Examples of items measuring the comprehensibility dimension are as follows (Antonovsky, 1987, p. 190ff.):

- *When you talk to people, do you have a feeling that they don't understand you? (from 'never have this feeling' to 'always have this feeling')*

- *Do you have a feeling that you are in an unfamiliar situation and don't know what to do? (from 'very often' to 'very seldom or never')*

The following items are examples that measure manageability:

- *When something unpleasant happened in the past your tendency was: (from 'to eat yourself up about it' to 'to say "ok that's that, I have to live with it" and go on')*
- *When you do something that gives you a good feeling: (from 'it's certain that you'll go on feeling good' to 'it's certain that something will happen to spoil the feeling')*

Meaningfulness is measured with items like these:

- *Doing the things you do every day is: (from 'a source of deep pleasure and satisfaction' to 'a source of pain and boredom')*
- *When you think about your life, you very often: (from 'feel how good it is to be alive' to 'ask yourself why you exist at all')*

Comprehensibility, the cognitive dimension, refers to the extent to which one perceives internal and external stimuli as rationally understandable, and as information that is orderly, coherent, clear, structured rather than noise—that is, chaotic, disordered, random, unexpected, and unexplained (Antonovsky, 1991, p. 39). The ability to create structure out of chaos makes it easier for us to understand one's context and one's own part in it, for example, one's role in the family or in the workplace. A prerequisite to be able to cope with a stressful situation is that one can to some extent understand it. What one comprehends is easier to manage.

Manageability, the instrumental or behavioral dimension, defined as the degree to which one feels that there are resources at one's disposal that can be used to meet the requirements of the stimuli one is bombarded by

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Fig. 12.1 The original view of the Sense of coherence and its three dimensions (Antonovsky, 1987)

(Antonovsky, 1991, p. 40). Formal resources include, for example, social services and care staff in public and private organizations. Informal resources include, for example, family, circle of friends, colleagues, and significant others; in other words, people who are trusted and who can be relied on difficult situations. Coping also requires that one is motivated to solve the problems that cause stress, is willing to invest energy to solve the problem, and finds meaning in being able to manage the situation. This leads to the third dimension of the sense of coherence, meaningfulness.

Meaningfulness, the motivational dimension, refers to the extent to which one feels that life has an emotional meaning, that at least some of the problems faced in life a face are worth commitment and dedication, and are seen as challenges rather than only as burdens (Antonovsky, 1991, p. 41). One needs to have a clear desire to resolve difficulties, and willingness to invest energy to get through experiences of stress that have the potential to cause distress.

The Validity and Reliability of the Sense of Coherence

Face validity: The sense of coherence scales have been empirically tested in different cultures, both Western and cultures in Africa and Asia. Studies have been conducted on different samples: general populations, different professions, in persons with disabilities, different patient groups as well as in children, adolescents, adults, and elderly, in families, in organizations, and also on a societal level. A systematic research review shows that as of 2003, the SOC-29 and SOC-13 had been used in at least 33 different languages in 32 different countries (Eriksson & Lindström, 2005). An update shows that another 16 languages can be added: Albanian (Roth & Ekblad, 2006), Croatian (Singer & Brähler, 2007), Brazilian (Bonanato et al., 2009), Hungarian (Biro, Balajti, Adany, & Kosa, 2010), Korean (Han et al., 2007), Lingala (Bantu language spoken in parts of Africa) (Pham, Vink, Kinkodi, & Weinstein, 2010), Persian, Swahili (Rohani, Khanjari, Abedi, Oskouie, & Langius-Eklöf, 2010) as well as local languages in Africa Afar, Bilein, Hidareb, Kunama people, Nara, Saho, Tigre, and Tigrinya (Almedom, Tesfamichael, Mohammed, Mascie-Taylor, & Alemu, 2007).

Fig. 12.2 The distribution of studies using the sense of coherence scale 1992–2015 in a global context

Since 2003, the SOC-29 and the SOC-13 has been used in a further 13 countries (Eriksson, 2014): Eritrea (Almedom et al., 2007), Croatia (Pavicic Bosnjak, Rumboldt, Stanojevic, & Dennis, 2012), Hungary (Biro et al., 2010), India (Suraj & Singh, 2011), Iran (Rohani et al., 2010), Italy (Ciairano, Rabaglietti, Roggero, & Callari, 2010), Korea (Han et al., 2007), Kosovo, the Democratic Republic of Congo (Pham et al., 2010), Spain (Virues-Ortéga, Martinez-Martin, Del Barrio, Lozano, & Grupo Espanol, 2007), Sudan (Abdelgadir, Shebeika, Eltom, Berne, & Wikblad, 2009), Taiwan (Tang & Li, 2008), and Turkey (Öztekin & Tezer, 2009). More recent research shows three additional countries: Austria (Mautner et al., 2014), Estonia (Höjdahl, Magnus, Mdala, Hagen, & Langeland, 2015), and Malaysia (Rostami, Lamit, Khoshnava, & Rostami, 2014).

In sum, the SOC-29 and the SOC-13 have been used in at least 49 different languages in at least 48 different countries around the world (Fig. 12.2).

Construct validity: The structure of the sense of coherence is complex. Recent research shows that the sense of coherence seems to be a multidimensional construct rather than a unidimensional as proposed by Antonovsky (1987), with all three dimensions constantly interacting with each other and together to form a common, overarching factor, sense of coherence. Following from that, Antonovsky maintained that on theoretical grounds, one should avoid lifting out individual dimensions in order to examine them separately.

Nevertheless, recent research has focused on the study of the structure and content of sense of coherence. There are studies that support Antonovsky's idea of the sense of coherence as a general factor with three dimensions (Antonovsky, 1993; Drageset & Haugan, 2015; Klepp, Mastekaasa, Sørensen, Sandanger, & Kleiner, 2007; Rajesh et al., 2015; Söderhamn & Holmgren, 2004; Söderhamn, Sundsli, Cliffordson, & Dale, 2015; Spadoti Dantas et al., 2014). Söderhamn et al. (2015) found evidence in a confirmatory factor analysis that confirmed the SOC-29 as one theoretical construct with three dimensions, comprehensibility, manageability, and meaningfulness. In a cross-sectional survey among Norwegian cognitively intact nursing home residents, Drageset and Haugan (2015) found that the three-factor model fit their data. However, the item 'has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?' was troublesome, and removing this item resulted in a better fit. Recent research suggests that the sense of coherence seems to be a multidimensional concept consisting of many different dimensions rather than a single factor (Eriksson & Lindström, 2005; Feldt, 2007; Naaldenberg, Tobi, van den Esker, & Vaandrager, 2011). Figure 12.3 shows the sense of coherence as a multidimensional construct.

Sandell et al. (1998) examined the sense of coherence instrument among a sample of Swedes and could not find support for a common factor, nor the three dimensions of comprehensibility, manageability, and meaningfulness. Three more or less stable dimensions emerged, where lust and depression were two extremes which could best be referred to the dimension of meaningfulness. Antonovsky's concepts comprehensibility could in this study be seen in the form of tolerance versus intolerance. The third factor, manageability, was reflected by trust and distrust (Sandell et al., 1998, p. 701).

Consensual validity is a term that indicates the extent to which various scientists agree on the properties of an instrument (Cooper, 1998). The consensual of validity is somewhat weak. While many researchers use either the SOC-29 or the SOC-13, there are also many different modified versions in use, with different numbers of questions and different possibilities of response options. Most of the modified versions have partially abandoned the original scale of 1–7 points (but the wording of the questions is usually the same as in the SOC-29 and SOC-13). Results from a research review 1992–2003 showed that there were at least 15 different modified forms from form consisting of only three questions to 28 questions (Eriksson & Lindström, 2005). This includes the special version adapted for families (FSOC) (Antonovsky & Sourani, 1988; Sagy & Antonovsky, 1992), for children (Margalit & Efrati, 1996), and a version for a school context (Nash, 2002). The Children's Orientation to Life Scale consists of 16 questions plus 3 distracters (Idan & Margalit, 2014; Margalit & Efrati, 1996). The response options follow a scale of 1–4, where 4 indicates the highest degree of sense of coherence. There are also two variants of the FSOC, the original with 26 questions and a shorter version with 12 questions (Antonovsky & Sourani, 1988; Sagy, 2008; Sagy & Antonovsky, 1992). The questions are the same as in the original form, but tailored to the child or to a family context. Table 12.1 provides a summary of some of the other sense of coherence scales in the literature, demonstrating a range of items from 3 to 16, and intended for use by various sociodemographic groups.

Antonovsky (1979) originally described the sense of coherence as an individual property. He later widened the perspective (Antonovsky, 1987) with sense of coherence also conceived at the family level. Recent research shows that the sense of coherence concept and measurement also can be applied in organizations such as a workplace (Bauer & Jenny, 2012; Bringsén, 2010; Bringsén, Andersson & Ejlertsson, 2009; Forbech & Hanson, 2013; Graeser, 2011; Mayer & Krause, 2011; Mayer & Boness, 2011; Nilsson, Andersson, Ejlertsson, & Troein, 2012; Orvik & Axelsson, 2012; Vogt, Jenny & Bauer, 2013).

Fig. 12.3 The sense of coherence as a multidimensional construct. 1) Antonovsky, 1987, 2) Sandell, Blomberg, & Lazar, 1998, 3) Sakano & Yajima, 2005
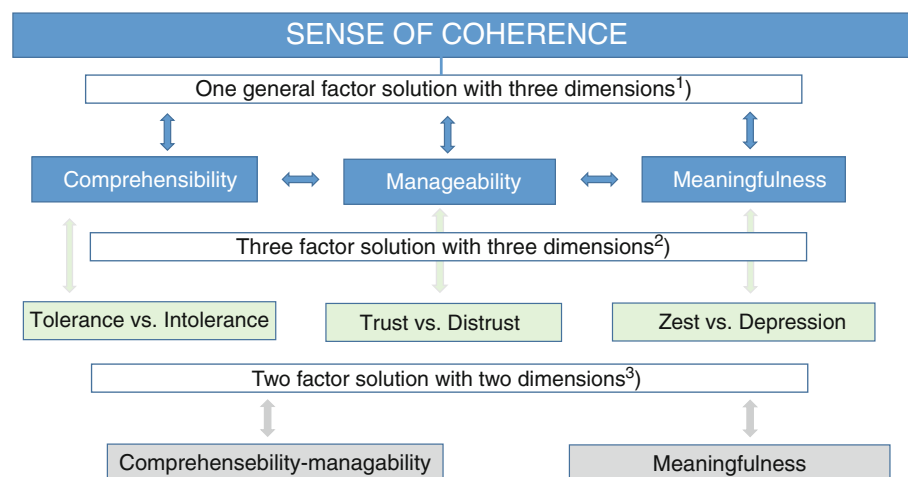
Table 12.1 A selection of different versions of the sense of coherence instrument

Authors	Country	Sample	N	Number of items	Response options	Cronbach's alpha
Agardh, E. E., Ahlbom, A., Andersson, T. et al. (2003). Work stress and low sense of coherence is associated with type 2 diabetes in middle-aged Swedish women. *Diabetes Care*, 26 (3), 719–724	Sweden	Healthy middle aged women	4821	SOC-3	3	
Schumann, A., Hapke, U., Meyer, C. et al. (2003) Measuring Sense of Coherence with only three items: A useful tool for population surveys. *British Journal of Health Psychology*, 8, 409–421	Germany	General population	3515	SOC-3 BASOC Brief Assessment— SOC	3	0.45
Bayard-Burfield, L., Sundquist, J., Johansson, S-E. (2001) Ethnicity, self-reported psychiatric illness, and intake of psychotropic drugs in five ethnic groups in Sweden. *Journal of Epidemiology and Community Health*, 55, 657–664	Sweden	Immigrants/ refugees Swedes	4981	SOC-3	7 - Likert	
Kivimäki, M., Elovainio, M., Vahtera, J. et al. (2002) Sense of coherence as a mediator between hostility and health. Seven-year prospective study on female employees. *Journal of Psychosomatic Research*, 52, 239–247	Finland	Women employed in municipalities	433	SOC-6	7 - Likert	0.76
Toft Würtz, E., Fonager, K., Tølbøll Mortensen, J. (2015). Association between sense of coherence in adolescence and social benefits later in life: a 12-year follow-up study. BMJ Open, doi: 10.1136/bmjopen-2014-006489	Denmark	Pupils	773	SOC-7	7 - Likert	0.77
Forsgärde, M., Westman, B., Nygren, L. (2000) Ethical discussion groups as an intervention to improve the climate in inter-professional work with the elderly and disabled. *Journal of Interprofessional Care*, 14(4), 351–361	Sweden	Health professionals	354	SOC-9	3 - Likert	0.60–0.69
Klepp, O.M., Mastekaasa, A., Sørensen, T. et al. 2007 Structure analysis of Antonovsky's sense of coherence from an epidemiological mental health survey with a brief nine-item sense of coherence scale. *International Journal of Methods in Psychiatric Research*, 16(1), 11–22	Norway	Adults	1062	SOC-9	7 - Likert	0.79
Li, W., Leonhart, R., Schaefert, R. et al. (2014) Sense of coherence contributes to physical and mental health in general hospital patients in China. *Psychology, Health & Medicine,* doi: 10.1080/13548506.2014.952644	China	Patients in hospitals	491	SOC-9	7 - Likert	
Mayer, J., Thiel, A. (2014) Health in elite sports from a salutogenetic perspective: Athletes' sense of coherence. PLOS One, 9(7),1–11	Germany	Elite sports	698	SOC-L9 Leipzig Short Scale	2	0.82
Naaldenberg, J., Tobi, H., van den Esker, F. et al. 2011 Psychometric properties of the OLQ-13 scale to measure Sense of Coherence in a community-dwelling older population. Health and Quality of Life Outcomes, 9, 37–45	Netherlands	Elderly people ≥ 65	1361	SOC-11	7 - Likert	
Kanhai, J., Harrison, V.E., Suominen, A.L. (2014) Sense of coherence and incidence of periodontal disease in adults. *Journal of Clinical Periodontology*, 41, 760–765	Finland	Adults	848	SOC-12	7 - Likert	0.85
Sagy, S. (1998) Effects of personal, family, and community characteristics on emotional reactions in a stress situation. *Youth & Society,* 29(3), 311–330	Israel	School children and their parents	399	SOC-12 Family-SOC	7 - Likert	0.81
Margalit, M., Efrati, M. (1996) Loneliness, coherence and companionship among children with learning disorder. *Educational Psychology*, 16(1), 69–80	Israel	Children with learning disabilities Barn med inlärnings-svårigheter	324	SOC-16 + 3 Childrens'-SOC	7 - Likert	0.72
Suominen, S., Blomberg, H., Helenius, H. et al. (1999) Sense of coherence and health—does the association depend on resistance resources? *Psychology and Health*, 14, 937–948	Finland	General population	3115	SOC-16	4 - Likert	0.84
Sagy, S., Antonovsky, A. (1992) The family sense of coherence and the retirement transition. *Journal of Marriage & Family*, 54(4), 983–994	Israel	Retirees and their relatives	214	SOC-26 Family-SOC	7 - Likert	0.88

Research that examines and discusses salutogenesis and the sense of coherence at a societal level is sparse. Braun-Lewensohn and Sagy (2011) report findings from studies using an instrument adapted for societal sense of coherence (Sense of Community Coherence), which contains seven questions describing how the individual experiences the society in terms of comprehensibility, manageability, and meaningfulness. Comprehensibility at the societal level addresses the experience of society as more or less organized in a way that makes life somewhat predictable, that the structure of society can be more or less understood, and that society is perceived as more or less safe and secure. Manageability is a state in which the individual experiences a society with resources that support individuals, for example , in emergencies or in critical situations. Societal support includes, for example, programs to support young people's mental health and initiatives to create conditions so that people from different generations can meet each other. Meaningfulness refers to the experience that society supports people to experience fulfillment, to develop their abilities, and to feel satisfaction with life (Braun-Lewensohn & Sagy, 2011, p. 535).

The relevance of salutogenesis and the sense of coherence to the building of healthy public policy has also been a focus of theorizing and research (Eriksson, Lindström, & Lilja, 2007; Lindström & Eriksson, 2009). To develop a social policy based on the salutogenic framework means to identify resources for health and welfare of the society, in the past as well as in the present, including risks of illnesses, and how this knowledge and the most effective measures can be used to resolve the current challenges. The core of such policy is to create coherence and synergies, from individuals to groups and organizations in the local community, and finally to the whole of society (Eriksson & Lindström, 2014; Lindström & Eriksson, 2009).

Criterion validity: Eriksson and Lindström (2005) present information about the relation between the SOC-29 to other instruments measuring health, perceived self, stressors, quality of life, well-being, attitudes, and behaviors. The correlation with health ranges in general from slight to good, using instruments such as the General Health Questionnaire, the Health Index, the Hopkin's Symptom Checklist, and the Mental Health Inventory, with such health measures explaining up to 66 % of the variance in the SOC-29. There are numbers of studies on the relation between SOC and quality of life and well-being. In general, they show that a high SOC is related to a high quality of life Eriksson and Lindström (2005).

Predictive validity: The ability of an instrument to predict how, for example, health develops in the future is called predictive validity (Abramson & Abramson, 1999). The predictive validity of the sense of coherence questionnaire seems to be relatively good, based on a review of longitudinal studies (Eriksson & Lindström, 2005). There are studies that support predictive ability (Lundman et al., 2010; Luutonen, Sohlman, Salokangas, Lehtinen, & Dowrick, 2011; Poppius, Virkkunen, Hakama & Tenkanen, 2006; Surtees, Wainwright, Luben, Khaw, & Day, 2003), whereas other studies have not done so (Norekvål et al., 2010). It seems the time for follow-up is an important factor for the predictive ability of the instrument. The results of a study among elderly persons, the Umeå 85+ study, show that the sense of coherence predicted mortality at 1-year follow-up, but not at follow-up after 4 years (Lundman et al., 2010).

Reliability: SOC-29 test–retest correlations range from 0.69 to 0.78 (1 year), 0.64 (3 years), 0:42 to 00:45 (4 years), 0:59 to 0.67 (5 years), and finally 0:54 after the 10-year follow-up (Eriksson & Lindström, 2005). The *internal consistency* measured by Cronbach's alpha ranges from 0.70 to 0.95 using SOC-29 (124 studies) and 0.70 to 0.92 (127 studies) using SOC-13 (Eriksson & Lindström, 2005, p. 463). The sense of coherence scale shows high internal consistency.

Critique of the SOC-29 and SOC-13

One indirect form of criticism has practical roots: as mentioned earlier, various sense of coherence measures have been developed that are shorter than even the SOC-13, as short as just three items. This reflects the reality that in many health survey applications, questionnaires must be very short. More directly, the SOC-29 and SOC-13 have been criticized on the basis of supposed shortcomings in the instruments' psychometric properties (Korotkov, 1993; Larsson & Kallenberg, 1999; Schnyder, Büchi, Sensky, & Klaghofer, 2000). It is asserted also that the sense of coherence concept does not deal adequately with emotional aspects of life experience (Flannery & Flannery, 1990; Flensborg-Madsen, Ventegodt, & Merrick, 2006c; Korotkov, 1993; Korotkov & Hannah, 1994). Inconsistent evidence about the lability/stability of the sense of coherence over the life course has also been noted by critics (Geyer, 1997). Criticism of salutogenesis generally includes implicit doubt about efforts to measure the sense of coherence via any means (Bengel, Strittmatter, & Willman, 1999; Kumlin, 1998). The leveling of such criticism is welcome as part of the healthy evolution of a 'living' theory or model, and responses to the critics are published (Eriksson, 2007; Lindström & Eriksson, 2010).

In the limits of this chapter, we focus on just the critical ideas of Trine Flensborg-Madsen, Søren Ventegodt and Jaov Merrick. The critique stems from their conclusion that the SOC-29 and SOC-13 are only moderately-to-weakly related to various measures of physical health (Flensborg-Madsen,

Ventegodt, & Merrick, 2005a), leading them to construct and test a new measure of the sense of coherence, intended to overcome limitations in the SOC-29 and SOC-13 (Flensborg-Madsen, Ventegodt, & Merrick, 2006a, 2006b). Their critique can be summarized in this way:

- Antonovsky presumed that one's internal and external environment have to be predictable in order for a person to have a high sense of coherence
- Predictability should not be included in conceptualizing and measuring the sense of coherence, because lack of predictability is not necessarily unhealthy
- Rather, unpredictability is what makes life matter in the first place; it can provide a state of initiative, energy, and positive attitudes

Since the SOC-29 includes several items that have to do with predictability, Flensborg-Madsen, Ventegodt, and Merrick (2005b) regard the instrument as flawed and they developed an alternative 9-item measure that excluded the concept of predictability, but that otherwise was purportedly built, as they write, on the exact same idea, theory, and conceptualization used by Antonovsky (Flensborg-Madsen et al., 2006a, 2006b).

Their conclusion about a weak association between the SOC-29 and SOC-13 and physical health is based on a review of about 50 studies (2005a). They categorize the health instruments in the reviewed studies as having foci on: physical health, biological measures, psychological measures, health measures incorporating psychological aspects, stress, and behavioral aspects. They conclude that the SOC scales are unable to explain health that is measured only by means of physical terms (Flensborg-Madsen et al., 2005a, p. 665). As a solution, Flensborg-Madsen et al. (2006c) propose the concept of 'emotional coherence' in relation to physical health and 'mental coherence' in relation to psychological health supported by Endler, Haug, and Spranger (2008).

Such fragmentation of the concept of the sense of coherence into physical and mental components breaks significantly from Antonovsky's fundamental notion of an 'orientation to life' (1979, 1987). Such fragmentation also reinforces the physical health/mental health divide in modern health care (and in the public's imagination), which has been challenged vigorously (WHO, 2001).

We move on to the issue of excluding predictability in sense of coherence measurement; to do so is to depart emphatically from 'the exact same idea, theory and conceptualization' used by Antonovsky', who wrote:

From the time of birth, or even earlier, we constantly go through situations of challenge and response, stress, tension, and resolution. The more these experiences are characterized by consistency, participation in shaping outcome, and an underload-overload balance of stimuli, the more we begin to see the world as being coherent and predictable. When, however, one's experiences all tend to be predictable, one is inevitably due for unpleasant surprises that cannot be handled, and one's sense of coherence is weakened accordingly. Paradoxically, then, a measure of unpredictable experiences-which call forth hitherto unknown resources—is essential for a strong sense of coherence. One then learns to expect some measure of the unexpected. When there is little or no predictability, there is not much one can do except seek to hide until the storm (of life) is over, hoping not to be noticed. Or else one strikes out blindly and at random until exhaustion sets in. No defense mechanisms can be adequate. We must note an implicit assumption here. If a strong sense of coherence is to develop, one's experiences must be not only by and large predictable but also by and large rewarding, yet with some measure of frustration and punishment. (Antonovsky, 1979, p. 187)

As this extended passage makes clear, reasonable predictability functions inextricably with many other aspects of experience to shape the sense of coherence.

Sense of Coherence Develops Over Time

According to Antonovsky (1987) sense of coherence develops until the age of about 30 years, thereafter sense of coherence was estimated to remain relatively stable until retirement, after which a decrease was expected. This assumption finds no support in subsequent empirical research. The sense of coherence seems to be relatively stable over time, but not as stable as Antonovsky assumed. Research shows that sense of coherence develops over the entire life cycle, that is, it increases with age (Feldt et al., 2007; Nilsson, Leppert, Simonsson & Starrin, 2010). Nilsson and coauthors were able to demonstrate on a sample of 43,500 Swedish respondents, aged 18–85 years, that sense of coherence increases with age in both men and women. Support for a corresponding development of the sense of coherence over time could also be seen in a longitudinal study of more than 18,000 Finns, in the Health and Social Support Study, where the sense of coherence continuously increased with age. A strong sense of coherence initially appears to determine its development over time (Feldt et al., 2011). There is a lack of longitudinal studies with long-term follow-up. The longest follow-up is that of 13 years (Hakanen, Feldt, & Leskinen, 2007). Table 12.2 shows findings from longitudinal studies with different time spans for follow-ups.

Table 12.2 The development of sense of coherence over time based on a sample of longitudinal studies

1 → 2 year	0.2 points	SOC-13	Virtanen and Koivisto (2001)
1 → 2 year	0.8 points	SOC-13	Bergman, Årestedt, Fridlund, Karlsson, and Malm (2012)
1 → 3 year	14.2 points	SOC-28	Kuuppelomäki and Utriainen (2003)
1 → 3 year	0.1 points	SOC-13	Honkinen et al. (2008)
1 → 5 year	1.6 points	SOC-13	Volanen, Suominen, Lahelma, Koskenvuo, and Silventoinen (2007)
1 → 5 year	1.8 points	SOC-13	Bergman et al. (2012)
1 → 5 year	3.6 points	SOC-13	Lövheim, Graneheim, Jonsén, Strandberg, and Lundman (2013)
1 → 9 year	−0.1 points	SOC-13	Luutonen et al. (2011)
1 → 10 year	2.7 points	SOC-13	Kalimo, Pahkin, Mutanen, and Toppinen-Tanner (2003)
1 → 12 year	0.3 points	SOC-29	Holmberg and Thelin (2010)
1 → 13 year	0.4 points	SOC-13	Hakanen et al. (2007)

Fig. 12.4 The salutogenic umbrella, salutogenesis as an umbrella concept
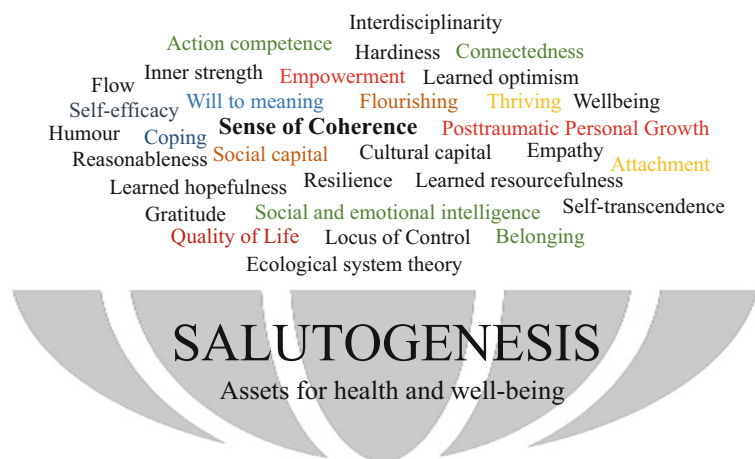
Salutogenesis Is More than the Measurement of the Sense of Coherence

Salutogenesis, focusing on health and on people's resources, is something more than the measurement of the sense of coherence. Today, we can talk about salutogenesis as an umbrella concept with many different theories and concepts with salutogenic elements and dimensions (Lindström & Eriksson, 2010). There is extensive research that focuses on the resources of individuals, groups, and communities. All this and more can be accommodated under the common umbrella. Figure 12.4 shows some related concepts to the sense of coherence collected under an umbrella.

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Salutogenesis: Sense of Coherence in Childhood and in Families

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Introduction

Our goals were to present the significance of the salutogenic conceptualization to the development and education of children, exploring in depth not only children with typical development, but also children with special needs, their schools, families, and community environments. In order to understand the developmental perspective of resiliency, we reviewed studies examining sense of coherence (SOC) at children's different developmental stages, from infants and toddlers through preschool children to school-aged children (up to 12 years of age). A comprehensive review of the literature (from 2000 to 2013) on SOC and children demonstrated a diverse range of themes: SOC within the child's contextual environments—family, school, peers, and community, and SOC as a predictor of children's health and health behavior.

First, a short description of the infant, preschool, and early childhood stage is presented, focusing on the challenges of this developmental stage. Second, the adaptation of the original SOC scale to children and its characteristics is described. Third, a summary of the studies reflecting challenges in the application of the salutogenic conceptualization to education with a focus on the experiences of children is discussed, alongside the risk factors, protective factors, and interventional implications related to current trends in the SOC studies within different contextual perspectives. And finally, we conclude by identifying future research directions.

Infant, Preschool, and Early Childhood Development

Studies on early childhood recognize that infancy and early childhood are distinct developmental periods in which young children differ significantly from older children, adolescents, and adults in terms of cognitive skills, language and communication, self-regulation, and socioemotional functioning (Mowder, Rubinson, & Yasik, 2009). The science of early childhood development demonstrates that the foundations for sound mental health are built early in life, as early experiences shape the architecture of the developing brain (Miller & Kinsbourne, 2012). These important experiences include children's relationships with parents, caregivers, relatives, teachers, and peers, which play a critical role in shaping social, emotional, and cognitive development. Recent research indicates that early intervention can have a positive impact on the trajectory of common emotional or behavioral problems as well as outcomes for children with adversities and disorders (National Scientific Council on the Developing Child, 2012). Adverse experiences early in life, particularly for vulnerable children, have been shown to predict the emergence of later physical and mental health problems (Edwards, Holden, Felitti, & Anda, 2003). Although mental health challenges for young children share many biological and behavioral characteristics with those of older children and adults, there are several aspects which differentiate early childhood from later developmental stages. First, emotional health for young children is very strongly influenced by their environment and the nature of their relationships and the support or

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risks these relationships confer. Therefore, it is essential to examine the quality of the children's environments and relationships in order to tap the risks for adversaries and the protective factors that may assist in promoting positive mental and physical health. Second, cognitive, social, and emotional characteristics are all intertwined within the architecture of the brain, and these capacities vary at different developmental stages. Children understand, manage, think, feel, and talk about their experiences differently at different ages. These developmental differences are important to understanding the behavioral and emotional risks and protective factors involved. Finally, in early childhood, it can be challenging to distinguish short-lived deviations in behavior from persistent problems, or typical differences in maturation from developmental delays (Rubin, Bukowski, & Parker, 2006).

From birth, children develop their abilities to experience and express a diverse range of emotions, as well as their capacity to cope with and manage different feelings (Thompson & Lagattuta, 2006). The development of these capabilities occurs at the same time as a wide range of highly visible skills in mobility, cognition, and communication (Thompson, 2001). The foundations of social competence that are developed in the first five years are linked to emotional well-being and affect a child's ability to functionally adapt in school later on and form promoting relationships during adolescence and adulthood (Cassidy & Shaver, 1999). Therefore, it is important to address children's affective and cognitive aspects. Failure to address difficulties in the socioemotional domain may result in missed opportunities for interventions at critical periods (National Scientific Council on the Developing Child, 2004).

The emotional experiences of newborns and young infants occur for the most while interacting with their caregivers. Associations between positive emotions and the availability of responsive caregivers are strengthened during infancy in both behavior and brain architecture (Cassidy, 1994). Toddlers and preschool children depend on their emerging capacities to interpret their own personal experiences and understand what others are doing and thinking, as well as to interpret the distinctions between different responses to them. By the end of the preschool years, children who have acquired emotional regulation skills, have the capacity to use their awareness of their own and others' feelings to interact on a daily basis (Thompson & Lagattuta, 2006). Studies have shown how the interrelated development of emotion and cognition relies on the emergence, maturation, and interconnection of complex neural circuits in multiple areas of the brain (Davidson et al., 2002). The emotional development of young children is correlated to the characteristics of the environments in which they live, including their families, school, and community (Reid, Patterson, & Snyder, 2002).

In order to dynamically understand the changing experiences of children at different age groups (preschool and elementary) within diverse environments (family, school, peer group, and community), and examine how children understand, manage, and find meaning in their world, a Children's Sense of Coherence Scale (CSOC) based on the three components of the SOC construct was developed.

Children's Sense of Coherence Scale

The Children's Sense of Coherence Scale (CSOC) (Margalit & Efrati, 1995) is an adaptation of the Antonovsky Orientation to Life (Sense of Coherence—SOC) Scale (Antonovsky, 1987). In line with the sense of coherence construct and the adults' scale, a children's version (CSOC) was developed, field tested and revised several times at the Special Education Laboratory in Tel-Aviv University.

Due to the children's young age and reservations regarding the ability of children to comprehend the construct and scale, it was decided to develop a scale that would meet the unique characteristics of the target population. The scale was developed in collaboration with Aaron and Helen Antonovsky. The scale included distractors relating to the children's life and activities. The language, the order of the words, the nature of the examples, and distracters were examined in order to ensure the comprehension of young children and the inclusion of age appropriate contents. Since its development, several additional versions have been used, such as for junior high school students, omitting the distracter items. Example: "I'm interested in lots of things" and "I'm interested in lots of things in my class" (for a school based research, or "at home"—for a family based research). In general, distracters were coherent with the given culture to which the children belonged to.

The children's scale was tested on children aged five to adolescents. Comprehension was examined using unstructured interviews; stability was verified by a series of retests. Conceptually, the items were derived from SOC-29 and the three components of the SOC. This consisted of 16 primary items and three filler items on a four-point Likert scale (the range was reduced to 4 from 'never' (1) to 'always' (4)). Scores ranged from 16 to 64, with items describing the children's feeling of confidence in their world, as expressed in their sense of comprehensibility—understanding their environment (i.e., "I feel that I don't know what to do in class"); sense of manageability—feelings of control, and confidence that when help is needed, it will be available (i.e., "when I want something, I'm sure I'll get it"); and meaningfulness interest in investing efforts in different

tasks (i.e., "I'm interested in lots of things") (Alpha = .72). Similar to the SOC scoring procedures, a high score reflected a high level of CSOC.

Studies using the CSOC explored children's personal and contextual resources and their ability to perceive family, social, and educational environments as structured and meaningful realities. The following section presents studies that used CSOC.

Studies on SOC During Childhood

A systematic search for studies on children and SOC between the years 2000 and 2013 in online databases (PsychoInfo, Ebsco, Proquest, APApsycnet, SocioFile, SAGE, Web of Science, and PubMed) using keywords (sense of coherence, salutogenesis, children, and family) and Boolean operators, presented 37 studies from 14 countries. Table 13.1 summarizes the studies.

Two major foci emerged from the review of the studies: Children's SOC within the family, school, peer group, and community environments and CSOC as a predictor of children's health and health behavior. The studies relating to CSOC and different contextual environments may be divided into three age groups/developmental stages: the preschool age stage, the elementary school age stage, and a prolonged stage from infant to adolescence/adulthood focusing on families of children with special needs.

SOC and the Child's Environments: Family, School, Peers, and Community

The salutogenic paradigm focuses on promoting growth and adjustment. The following research deals with the contributions of children's environments: families, friends, and school systems, to the adjustment of children with typical development and children with special needs.

The resilience approach defines assumptions about the critical predictors of the full potential of children to learn and to thrive in diverse settings regardless of personal and environmental challenges and risk factors (Damon, 2004). A major role of resilient research is to identify the complex transactions and processes among internal and external (risk and protective) factors that affect children's resilience and sense of coherence (Margalit, 2003).

Sense of coherence at the preschool age stage. Children at various ages, with a high sense of coherence, may perceive their day-to-day experiences as comprehensible and manageable. In order to explore the sense of coherence of typically developing preschool children and preschool children with special needs, studies examined the children and their parents within different contextual settings (Al-Yagon,

2003; Margalit, 1998; Most, Al-Yagon, Tur-Kaspa, & Margalit, 2000). In a sample of 187 preschool children aged 4.9–6.3 years, children who were identified as at risk for developing learning disabilities, even before they were formally diagnosed and labeled, had experienced a lower sense of coherence, had fewer friends, and were less accepted by their peers. The sense of coherence assessment revealed the children's heterogeneity, and even among the group of typical developing children a small subgroup could be defined with a very low sense of coherence and many social challenges. In addition, in line with the salutogenic paradigm, special attention was given to a small subgroup of children within the group of children at risk whose sense of coherence was high. The relatively small extreme groups may add to the understanding of the development of coherence from early developmental stages (Margalit, 1998).

The children with a risk for developing learning disabilities received a special tutoring program on an individual and small group basis during school time by the special education teachers. The focus was on language enrichment and basic learning skills. The sense of coherence of a subgroup of these preschool children ($N = 67$) was tested. Significant differences were noted in the comparisons between the sense of coherence scores at the beginning of the intervention and at the mid-year evaluation. However, no significant differences were found between mid-year and the end of the year. The correlations between the first and the second assessment of children's sense of coherence were significant (0.34) and between the second and the third assessment (0.32) as well. It can be concluded that at this age stage, there was some level of flexibility in the children's sense of coherence, and remedial work that focused training on the delayed academic, language, and cognitive functioning was related to increased sense of coherence, and narrowing the gap with the typical developing group (Margalit, 1998).

Language difficulties and social emotional challenges are often considered as two separate risk factors at the preschool age stage. A study of preschool children explored the relations between children's sense of coherence, loneliness, and phonological awareness. Phonological awareness consists of language skills such as awareness to the structure of sounds in words and sentences. Research reports that they predict reading acquisition (Most et al., 2000). The study examined the phonological awareness skills, loneliness, sense of coherence, and peer acceptance among 98 children aged 5.0–6.4 years old. Children at risk had lower achievements as a group on the phonological awareness measures; reported lower CSOC, viewed themselves as lonelier, and were less accepted by their peers.

Family ecology is comprised of parental, familial, and environmental characteristics that may affect the capacity of the family to provide optimal care (Greenberg, Speltz, &

Table 13.1 Studies (2000–2013) on SOC during childhood

Author	Year	Place	Population	Variables	Results
1. Al-Yagon	2003	Israel	145 mother child dyads of 5–6.5-year-old kindergartners with/without mild developmental delays	Children: developmental delay status, temperament, gender, loneliness, SOC, friendship nomination, attachment security style; mother's SOC, family cohesion and adaptability	Child's SOC demonstrated that the attachment pattern mediator variable significantly explained 15 % of the variance among children with developmental delays. Children having secure attachment reported higher levels of SOC than children having insecure attachment.
2. Al-Yagon	2007	Israel	110 mother child dyads of 8–11-year-old school children with/without LD	Children: LD and non-LD group, gender, loneliness, SOC, attachment security style, hope; mothers: coping, affect, experience in close relationships, child behavior	Mothers' low use of avoidant coping strategies and less avoidance in close relationships with significant others were found to moderate the effect of children's disabilities on children's levels of loneliness, hope, and secure attachment.
3. Al-Yagon	2008	Israel	58 mother child dyads of 8–11-year-old school children	Children: loneliness, SOC, mother-rated behavior; mothers: SOC, attachment style, loneliness	Maternal SOC significantly contributed to all child socioemotional adjustment measures and attachment scores.
4. Al-Yagon	2010	Israel	205 mother child dyads of 8–12-year-old school children with/without LD	Children: LD and non-LD group, gender, SOC, attachment security style, hope, effort; mothers: experiences in close relationships, affect, child behavior	Children's adjustment and SOC mediated associations between maternal emotional resources and children's well-adjusted functioning. The significantly lower SOC among children with LD emphasized this coping resource.
5. Al-Yagon	2011	Israel	205 father child dyads of 8–12-year-old school children with/without LD	Children: LD and non-LD group, gender, SOC, loneliness, attachment security style, hope, effort; fathers: coping, SOC, child behavior	The mediating role of CSOC emerged for both groups in the association between fathers' resources and children's well-adjusted functioning. The significantly lower SOC among children with LD emphasized this coping resource.
6. Al-Yagon	2012	Israel	312 8–12-year-old school children with/without LD and their parents	Children: LD and non-LD group, gender, SOC, loneliness, attachment security style, hope; parents: child behavior	Children who felt securely attached to both parents reported a higher global orientation or enduring tendency to see the world as comprehensible, manageable, and meaningful than children who felt securely attached to only one parent or to neither parent. In contrast, children who exhibited insecure attachment to both parents appeared to be the most vulnerable in forming coping resources.
7. Al-Yagon and Cinamon	2008	Israel	96 mother child dyads of 8–12-year-old school children with/without LD	Children: LD and non-LD group, gender, attachment security style; mothers: experiences in close relationships, affect, work family relations, SOC, family cohesion, and adaptability	Higher maternal perceptions of the world as comprehensible, manageable, and meaningful contributed significantly to children's secure attachment and level of connection, closeness and involvement between the family members.
8. Al-Yagon and Margalit	2006	Israel	266 3rd graders with/without reading difficulties	Loneliness, SOC, children's appraisal of teacher as a secure base	Children's perception of their teacher as their secure base correlated significantly with higher levels of SOC and lower levels of loneliness.

Table 13.1 (continued)

Author	Year	Place	Population	Variables	Results
9. Al-Yagon and Mikulincer	2004	Israel	196 8–11-year-old school children with/without LD; 23 homeroom teachers	Children: LD and non-LD group, gender, loneliness, SOC, attachment security style; teachers: ratings of children's academic functioning	Secure attachment classification correlated significantly with higher levels of SOC and lower levels of loneliness.
10. Berntsson and Gustafsson	2000	Sweden	1163 7–12-year-old school children	Psychosomatic complaints, mental stability, family activities, parents' health status, gender, parents' social class, education, income, ethnicity, employment, and family structure	Predictors of psychosomatic complaints were mother's health, child's mental stability, contacts with peers, long-term illness, and via other factors, parents' SOC, social competence, and school satisfaction.
11. Bonanato et al.	2009	Brazil	546 mother child dyads of 5-year-old preschool children	Mothers' SOC, oral health status, social class	Mothers with lower levels of SOC were more likely to have children with decayed teeth or filled teeth regardless of the child's social class and gender.
12. Dabrowska	2003	Poland	77 parents of children with CP and 62 parents of normally developing children	Coping, stress, SOC	Parents of children with cerebral palsy, reporting higher levels of SOC, less often used avoidance, wishful thinking and resignation as coping strategies than parents reporting lower levels of SOC.
13. Dabrowska	2008	Poland	128 fathers of children with and without developmental disabilities	SOC, coping	Fathers of children with developmental disabilities reported lower levels of SOC more frequently and used strategies of avoidance compared to fathers with higher levels of SOC that used confrontation more frequently and positive reappraisal and problem solving behavior.
14. Efrati-Virtzer and Margalit	2009	Israel	337 school children grades 3–6 with/without behavior difficulties; 47 teachers	Children: SOC, loneliness, peer nominations; teachers: hyperactive behavior, aggressive behavior, academic achievements	Teachers evaluated students with BD as achieving lower academic grades and displaying higher levels of hyperactive behavior and aggression. Children with BD were less accepted by their peers, reported lower levels of SOC and higher levels of loneliness. Students that were rated by their teachers as revealing higher levels of hyperactive and aggressive behavior experienced lower levels of personal coherence.
15. Einav et al.	2012	Israel	111 mother-child dyads of infants aged 3–24 months with developmental delays	SOC, family cohesion and adaptability, coping, hope	Mothers with high levels of SOC and with high coping strategies felt more hopeful. In families characterized by flexibility and open to changes, mothers reported higher levels of coping that contributed to their hope measure. Family cohesion was interrelated with mothers' SOC, but not directly related to coping or to hope. Cohesion was related to hope only indirectly, mediated through mothers' SOC.

Table 13.1 (continued)

Author	Year	Place	Population	Variables	Results
16. Forinder et al.	2005	Sweden	52 patients aged 9–22 (at least 3 years following stem cell transplant)	Late effects in each of eight predefined problem categories, patient activity, SOC, quality of life	The scores obtained on SOC for younger children (aged 9–12) showed that the SCT group has an SOC on par with that of both the norm groups and other chronically ill children. The mean value for the younger children in the SCT group was on par with that of the norm group.
17. Groholt et al.	2003	The five Nordic countries	9524 2–17-year-old children of which 35 % were coresponders (with their parents), 2 % children	Parental SOC, parental health, marital status, education, socioeconomic status, income, child chronic health condition, child gender	Compared to the higher social classes, low levels of SOC were more common in the lower classes. The association of child chronic health with parental poor SOC was found to be disability specific (diabetes, epilepsy, psychiatric problems).
18. Hedov et al.	2002	Sweden	207 parents of children (aged 3.5–7) with Down's syndrome, 237 parents of healthy children	Parents' groups, SOC, parental self-perceived stress, frequency of gainful employment, amount to time spend ton child care	Mean SOC scores of the parents of children with DS did not differ from those of the control group. Parents from both groups who experienced lower stress in parenthood had a stronger SOC.
19. Hintermair	2004	Germany	235 mothers of children aged 1–13 with hearing impairments	SOC, stress, life satisfaction, social support, age, gender, education, means of communication with children	Mothers with a stronger SOC had an advantage in coping with the experience of raising a deaf and hard of hearing child over mothers with lower SOC scores. SOC was of greater importance than experienced social support.
20. Honkinen et al.	2005	Finland	1231 12-year-old school children	Profession of parents, gender, SOC, physical activity, weight, academic achievements, social support, class climate, psychosomatic symptoms	SOC and variables of social support were found significantly associated with perceived health. Physical exercise and SOC were associated with perceived health and father's occupation and poor SOC was found to be independently associated with relatively poor health.
21. Jellesma et al.	2006	Netherlands	153 8–13-year-old school children at three levels of somatic complaints	Groups: Low somatic complaints, many somatic complaints, clinical group; happiness, anger, fear, sadness, depressiveness, emotion awareness, SOC	The clinical group and the children with many somatic complaints reported more negative moods on the anger, sadness and fear scale, more difficulty differentiating emotions and a lower SOC.
22. Krause	2011	Germany	226 5–10-year-old school children; longitudinal	Health promotion by self-worth reinforcement program, SOC, feeling of self-worth, sense of belonging	Developing sense of coherence in promoting mental health in school children was perceived fundamental and most effective in the early years of childhood requiring training of professionals within the school.
23. Liberman et al.	2013	Israel	50 5–6-year-old school children with/without developmental coordination disorder	Gender, mother education, family income, place of living, movement, children's partaking (completed by parents for aged 4–6.5), performance skills, SOC, hope, effort	Levels of SOC, hope and effort in children with DCD were lower than their typically developing peers. The explanatory variables (SOC, hope and effort, motor skills, and processing skills) did not predict either the diversity or the frequency measures of participation.

(continued)

Table 13.1 (continued)

Author	Year	Place	Population	Variables	Results
24. Londal	2010	Norway	36 8–9-year-old children participating in an after school program; 4 months, qualitative	Play, SOC	Play in the ASP had considerable potential of promoting the children's SOC. Most of the children in the study experienced their world as comprehensible, manageable, and meaningful. Negative thoughts and feelings were reduced during bodily play. Play offered particularly strong opportunities for the children themselves to shape outcomes, and interact with children, promoting their SOC.
25. Mak et al.	2006	Hong Kong	157 mothers of children with autism (aged 1–28)	Severity of autistic symptoms, SOC, parenting attitudes, parenting stress, age, education, marital status, income	Mothers with a higher level of SOC reported less stress than those with a lower level. SOC had a moderating effect on the association between symptom severity and parenting stress.
26. Margalit, Al-Yagon and Kleitman	2006	Israel	80 mothers of children aged 2–39 months exhibiting delayed development	SOC, family cohesion and adaptability, mood, coping, parenting stress	Mothers from noncohesive families with lower SOC experienced higher levels of stress than mothers from cohesive families with higher SOC. Mothers from noncohesive families with lower SOC experienced lower levels of positive mood than mothers from cohesive families with high SOC.
27. Most et al.	2000	Israel	98 5–6.4-year-old preschool children with/ without risk for developing LD	Groups (at risk and not at risk), gender, phonological awareness skills, loneliness, SOC, peer acceptance	Children at risk scored lower on phonological awareness, loneliness, SOC, peer acceptance. The largest number of children at risk was in the group with lowest levels of SOC and phonological awareness skills.
28. Nammontri et al.	2013	Thailand	257 10–12-year-old school children; 133 intervention group	Clinical variables, oral health-related quality of life, SOC, oral health beliefs	Greater SOC predicted positive health beliefs and fewer symptoms. Intervention provided evidence that SOC influences oral health-related quality of life.
29. Natvig et al.	2006	Norway	4116 school children aged 11, 13, and 15.	Age, gender, SOC, supportive school climate, learning conditions, school-related stress	Analyses of all resources and stress factors, the strongest and most adverse association with SOC were seen in the relation with feeling pressured by schoolwork. Among girls, this association was strongest for the youngest group. School-related factors represent both resource and stress factors of importance for the SOC.
30. Oelofsen and Richardson	2006	United Kingdom	104 fathers and mothers of preschool children (average age 43.8 months) with/without developmental disabilities	Family structure, parental age, socioeconomic classification, child gender, child age, SOC, parenting stress, parental health status, parental social support	Parents of children with DD reported parenting stress within the clinical range, weaker SOC, and poorer health than parents of children without DD. Mothers of children with DD reported poorer health, higher levels of parenting stress and weaker SOC than their partners.

Table 13.1 (continued)

Author	Year	Place	Population	Variables	Results
31. Olsson and Hwang	2002	Sweden	429 fathers and mothers of children aged 0–16 with/without intellectual disability	Parental group, SOC, depression	Parents of children with ID who reported low levels of SOC were more depressed than control parents with low levels of SOC. No relation was found between the age of the child and SOC levels in parents of children with ID.
32. Pisula and Kossakowska	2010	Poland	45 couples of parents to children aged 3–7 with/without autism	Parental gender, education, employment, time spend caring for the child, SOC, ways of coping	Parents of children with autism had a lower level of the total SOC, meaningfulness, and manageability compared with controls and used escape avoidance coping more often. SOC level was positively associated with seeking social support and self-controlling and negatively with accepting responsibility and positive reappraisal.
33. Ray et al.	2009	Finland	772 parent child dyads of 10–11-year-old school children	Children: meal patterns, food frequency intake; parents: SOC, eating patterns	A weaker parental SOC was associated with children's irregular meal pattern, more frequent intake of energy-rich foods, and less frequent intake of nutrient-rich foods.
34. Sharabi, Levi, and Margalit	2012	Israel	287 10–11.6-year-old school children	Loneliness, SOC, hope, effort, family cohesion, and adaptability	Four family profiles were identified: Children in the two cohesive families' clusters reported the lowest levels of loneliness and the highest levels of personal strengths. Children within noncohesive family clusters reported the highest levels of loneliness and lowest levels of SOC.
35. Sivberg	2002		37 families, 66 parents of children with and without autism	Coping, coping behavior, strain, SOC	Parents of children with autism reported low levels of SOC. Lower levels of coping were associated with higher levels of strain on the family system and the level of strain on the family system was greater in the families with a child with an ASD.
36. Svavarsdottir et al.	2005	Iceland	76 American families (75 mothers and 62 fathers) and 103 Icelandic families (103 mothers and 74 fathers)	Family adaptation, family hardiness, SOC, caregiving demands, family demands, severity of illness	SOC and family hardiness predicted family adaptation. Icelandic mothers perceived their family's adaptation more favorably than American mothers. Regarding fathers, family demands predicted adaptation. SOC moderated the effect of family demands on adaptation for both parents.
37. Torsheim et al.	2001	Norway	1592 grade 6, 1534 grade 8, 1605 grade 10 children	Health complaints/symptoms, school-related stress, SOC	Age group comparisons revealed that the association between SOC and stress weakened with age. Association between SOC and health complaints grew stronger.

DeKlyan, 1993). Olson (2000) identified cohesion and adaptability as two major parameters for evaluating the functioning of a family. Cohesion refers to the extent of connection, closeness, and involvement between the family members. Adaptability reflects the family's capability to change as an adaptation to developmental and external pressures (Olson, 1986, 2000). A family system has been considered balanced when it demonstrates moderate scores on these two dimensions. In a study examining SOC, attachment security style, loneliness, and temperament of 145 children aged 5–6.5 with and without developmental delays, and their mothers' SOC and family cohesion and adaptability, children having secure attachment to their mothers reported higher levels of SOC than children having insecure attachment (Al-Yagon, 2003).

In summary, the studies on preschool children identified SOC as a meaningful developing protective factor that differentiated between children with typical development and high risk children, even before their formal assessment and measurable academic challenges.

Sense of coherence at the elementary school age stage. The transfer to elementary schools expands the variability of the factors that affect and are affected by the children's sense of coherence. Children's academic success, social competence, and effective coping capabilities contribute to their well-being and adjustment during that period, while academic, social, and behavior difficulties may be considered risk factors. Interactions with teachers and peers have a profound impact on the children's life quality. Multiple studies examined the relations between children's sense of coherence and their family; their perceptions of teachers' support, peer friendships, and their overall school experience, revealing the complex and multivariate interactions at the elementary school age stage (Al-Yagon, 2007, 2008, 2010, 2011, 2012; Al-Yagon & Cinamon, 2008; Al-Yagon & Margalit, 2006; Al-Yagon & Mikulincer, 2004; Efrati-Virtzer & Margalit, 2009; Liberman, Ratzon, & Bart, 2013; Sharabi, Levi, & Margalit, 2012).

In order to further clarify the role of teachers for understanding children's sense of coherence, the attachment conceptualization (that was developed for children–mothers' relations) was adapted to schools' relationships. Children's perceptions of the teachers as a source of secure base were examined, and the results revealed that secure attachment patterns expressed in the development of close relationships with teachers predicted children's SOC and loneliness (Al-Yagon & Margalit, 2006; Al-Yagon & Mikulincer, 2004). Children, who felt that their teachers were more available to them and more accepting, reported higher levels of sense of coherence and lower feelings of loneliness.

In another study (Efrati-Virtzer & Margalit, 2009), the characteristics of children with behavior difficulties were examined (behavior difficulties included verbal and physical

aggression toward children and objects). The age range of these children was 9–12 years and they were compared with children with no adjustment problems from the same classes. Results revealed that the behavior difficulties contributed to the explanation of social and academic functioning and were linked to social difficulties—in terms of lower peer acceptance and increased rejection by children in their classes, as well as to lower academic achievement. Children with disruptive behavior also reported lower levels of CSOC. Those children with higher CSOC revealed emotional self-regulation and participated in fewer behavior conflicts at school. It is not clear whether lower SOC was the outcome of the multiple academic, social, and behavior difficulties or predicted them. These studies proposed to treat the SOC as a protective factor that in several studies it was negatively related to loneliness, social rejection, and academic challenges. A lower sense of coherence was consistently related with higher levels of loneliness, lower social status, and lower academic functioning. In addition, students with lower levels of coherence were less accepted by their peers and rated as more rejected by them. Furthermore, students who were rated by their teachers as revealing higher levels of hyperactive and aggressive behavior experienced lower levels of personal coherence.

The study of social relations at school provided additional validation to the complexity of the interacting variables. The most common approach for exploring children's status in their class requests children to nominate their best friends (and those that they do not like) as measures of social acceptance and rejection. The construct of reciprocal positive nomination (reciprocal friendship) attracted increased research attention, since it provided information on mutual perceptions, reflecting the interpersonal attraction and liking where within a pair of children each one selected the other as a friend (Yugar & Shapiro, 2001). If mutual positive nomination was an important indicator in reflecting friendship and explaining decreased alienation experience in schools, the reciprocal negative nomination (mutual selection within a dyad of children of the least liked child in the class) extended the understanding of increased experience of social isolation, identified enemies in classes and enhanced feelings of social exclusion and loneliness. It is not surprising that they were related to lower SOC (Efrati-Virtzer & Margalit, 2009).

Research on elementary school children with and without developmental delays and their families identified SOC as playing a significant protective role during the first year at school. In a study on 50 5–6-year-old school children with and without developmental coordination disorder (DCD), levels of CSOC, hope, and effort in children with DCD were lower than their typically developing peers. Significant correlations were found between CSOC to the children's involvement in daily activities in a variety of environments.

The CSOC was related to the children's independence and enjoyment from participation in age appropriate social and leisure activities (Liberman et al., 2013).

The relations between children's SOC and families' characteristics. Several studies have shown that maternal coping resources moderated the effect of children's learning disabilities on secure attachment, levels of loneliness, feelings of hope, and future expectations. The degree to which the learning disability affected the children's socioemotional academic competence and social interrelations was related to the type of coping their mothers employed and their reliance on social support (Al-Yagon, 2007, 2008, 2010, 2011, 2012; Al-Yagon & Cinamon, 2008): Maternal SOC significantly contributed to the child's socioemotional adjustment measures and attachment scores (Al-Yagon, 2008); children's adjustment and SOC mediated associations between maternal emotional resources and children's well-adjusted functioning. The significantly lower SOC among children with LD emphasized this coping resource (Al-Yagon, 2010); studies also recognized the significance of children's relations not only with mothers, but also with fathers. The mediating role of CSOC emerged for children with and without learning disabilities in the association between fathers' resources and children's well-adjusted functioning (Al-Yagon, 2011); children who felt securely attached to both parents reported a higher global orientation or enduring tendency to see the world as comprehensible, manageable, and meaningful than children who felt securely attached to only one parent or to neither parent. In contrast, children who exhibited insecure attachment to both parents appeared to be the most vulnerable in forming coping resources (Al-Yagon, 2012; Al-Yagon & Cinamon, 2008).

In a study on 287 10–12-year-old school children, four family profiles were identified: children in the cohesive families' clusters reported the lowest levels of loneliness and the highest levels of CSOC, whereas children within noncohesive family clusters reported the highest levels of loneliness and the lowest levels of CSOC (Sharabi et al., 2012).

In conclusion, during elementary school, children acquired basic learning skills, established positive and negative relations with teachers and peers, and their functioning predicted their life quality, as well as presenting special academic and behavior challenges. At this age stage, SOC was shown to provide a unique and relatively stable index of children's social and emotional adjustment and well-being. The entrance to high schools and to the adolescence age stage not only provided extended opportunities, but also revealed continued difficulties and new challenges.

A study of the Norwegian education system explored elementary through junior high school children focusing on age and gender comparisons with regard to school-related stress and resources and their relations to the SOC construct. The sample consisted of 4116 school children aged 11, 13, and 15. SOC was related to feeling pressured by schoolwork, social support from peers and expectations. Among girls, this association was strongest for the youngest group. School-related factors were shown to represent both resource and stress factors related to the SOC (Natvig, Hanestad, & Samdal, 2006).

From infancy to adolescence/adulthood: Families of children with special needs. Children with special needs are considered a source of distress to their families. Their increased levels of stress reflect their emotional reactions to the unexpected and challenging reality of having children with developmental disabilities and behavior challenges. The fathers' and mothers' SOC reflects the impacts of the prolonged stress, but at the same time reveals their parental resources that may be conceptualized as resources that serve as protective factors (Margalit, 1994).

Research on infants and preschool children with developmental delays and their families (Einav, Levi, & Margalit, 2012; Hedov, Anneren, & Wikblad, 2002; Margalit, Al-Yagon, & Kleitman, 2006; Oelofsen & Richardson, 2006; Pisula & Kossakowska, 2010) identified the parents' SOC as meaningful for the development of their children. In a study of 111 mother–child dyads of infants aged 3–24 months with developmental delays, mothers with high levels of SOC and with high coping strategies felt more hopeful. The family cohesion (the mothers' perceptions that their family members were close to one another and provided support when needed) was interrelated with mothers' SOC. Cohesion was related to hopeful thinking only indirectly, mediated through mothers' SOC. Only for mothers, who reported high levels of SOC, was the family support meaningful in the prediction of hopeful thinking (Einav et al., 2012).

Mothers from noncohesive families with lower SOC experienced higher levels of stress than mothers from cohesive families with higher SOC in a study examining SOC, family cohesion and adaptability, mood, coping, and parenting stress of 80 mothers of children aged 2–39 months exhibiting delayed development. Furthermore, mothers from noncohesive families with lower SOC experienced lower levels of positive mood than mothers from cohesive families with high SOC (Margalit et al., 2006). Oelofsen and Richardson (2006) studied both fathers and mothers of preschool children with developmental disabilities (DD) and found that parents of children with DD reported parenting stress within the clinical range, lower SOC, and poor health than the comparison group—parents of children without DD. The study's results focused attention on the mothers who as the major care giving parent, experienced more stress than the fathers and reported more health problems, and lower SOC than the fathers.

Studies focusing on parents to children with special needs emphasized the significance of SOC in relation to parenting stress: parents of children with cerebral palsy, reporting higher levels of SOC, less often used avoidance, wishful thinking, and resignation as coping strategies than parents reporting lower levels of SOC (Dabrowska, 2003); parents of children with Down's syndrome as well as the comparison group had a higher SOC when their stress level was lower (Hedov et al., 2002); and fathers of children with developmental disabilities reported lower levels of SOC more frequently and used strategies of avoidance compared to fathers with higher levels of SOC that used confrontation more frequently and positive reappraisal and problem solving behavior (Dabrowska, 2008).

In a study on parents of children with autism, the parents reported lower levels of SOC than the comparison group and used avoidance coping more often. Among parents of children with autism, the SOC level was positively associated with seeking social support and self-controlling and negatively with accepting responsibility and positive appraisal. The results demonstrated that the frequency of using accepting responsibility strategy increased with decreasing levels of SOC among the parents. This may suggest that one of the consequences of low SOC may be a self-blame tendency for the occurrence of stressful situations related to parenting a child with special needs (Pisula & Kossakowska, 2010). This confirms earlier findings on lower levels of SOC among parents of children with autism (Olsson & Hwang, 2002; Sivberg, 2002).

Several studies explored SOC in families of children with developmental disorders from birth to adolescence (ages 1–13, 0–16) and/or adulthood (ages 1–28). Hintermair (2004) studied 235 mothers of children aged 1–13 with hearing impairments and found that mothers with stronger SOC had an advantage in coping with the experience of raising a deaf and hard of hearing child over mothers with lower SOC scores. SOC was of greater importance than experienced social support. Similarly, Olsson and Hwang (2002) studied 429 fathers and mothers of children from birth to 16 years of age with and without intellectual disability (ID) and found that parents of children with ID who reported low levels of SOC were more depressed than control parents with low levels of SOC. No relation was found between the age of the child and the levels of SOC in parents of children with ID. In a study of children, adolescents and young adults with autism, Mak, Ho, and Kaw (2007) reported that mothers with a higher level of SOC reported less stress than those with lower levels of SOC. SOC had a moderating effect on the association between symptom severity and parenting stress.

In summary, the studies on families of children with special needs identified SOC as a significant protective factor related to effective coping and hopeful thinking that differentiated between families of children with typical development and families of children with special needs. Understanding the relationship between SOC and coping among parents of children with special needs provides insight into the mechanisms involved in parental adjustment and effective coping outcomes.

SOC as Predictor of Health and Health Behavior

In the past decade, research has shown the relationship between social factors, health and disease, focusing attention on salutogenic models, concentrating on personal control. This trend followed former studies that revealed that persons with a strong SOC tended to manage stress better, whereas persons with a poor SOC tended to be more sensitive to health challenges and illness (Lundberg & Nystrom, 1994). Recent multiple researches on SOC and health have identified SOC as a predictor of health and health behavior (Berntsson & Gustafsson, 2000; Bonanato et al., 2009; Forinder, Löf, & Winiarski, 2005; Groholt, Stigum, Nordhagen, & Kohler, 2003; Honkinen, Suominen, Valimaa, Helenius, & Rautava, 2005; Jellesma, Rieffe, Terwogt, & Kneepkens, 2006; Krause, 2011; Løndal, 2010; Nammontri, Robinson, & Baker, 2013; Ray, Suominen, & Roos, 2009; Torsheim, Aaroe, & Wold, 2001).

Studies examined determinants of psychosomatic complaints in children and found that the predictors of psychosomatic complaints were mother's health, child's mental stability, contacts with peers, long-term illness, and, via other factors, parents' SOC, social competence, and school satisfaction (Berntsson & Gustafsson, 2000). Furthermore, in an attempt to understand the relationship between poor perceived health during childhood and an individual's well-being throughout life, 1231 12-year-old school children in Finland were studied. SOC and variables of social support were found significantly associated with perceived health. Physical exercise and SOC were associated with perceived health and father's occupation and poor SOC was found to be independently associated with relatively poor health (Honkinen et al., 2005).

Studies focusing on the relation of somatic complaints and emotional functioning of children pinpointed attention at the existence of emotional problems in children who reported somatic complaints. Jellesma et al. (2006) studied 153 8–13-year-old school children at three levels of somatic complaints (few, many, and clinical). The results showed that the clinical group and the children with many somatic complaints reported more negative moods on the anger, sadness, and fear scale, more difficulty differentiating emotions and a lower SOC than the group with fewer complaints. Torsheim et al. (2001) studied 1592 sixth grade children, 1534 eighth grade children, and 1605 tenth

grade children in an attempt to tap the role of SOC and school-related stress as predictors of health complaints. Age group comparisons revealed that the association between SOC and stress grew weaker with age, whereas the direct association between SOC and health complaints grew stronger. Fifty two patients aged 9–22, who had stem cell transplant at least 3 years before the study, participated in a study of health and quality of life. The scores obtained on SOC for younger children (aged 9–12) showed that children in the SCT group have an SOC level equal to that of both the norm groups and other chronically ill children. The mean value for the younger children in the SCT group was in line with that of the norm group of children aged 9 (Forinder et al., 2005).

Parents' SOC and children's health. The parents' role in predicting their children's health and health behavior was examined based on the salutogenic model. The relation between parental SOC and child health was explored in a large-scale study (Groholt et al., 2003) in the five Nordic countries which included 9524 2–17-year-old children of which 35 % co-responded with their parents due to their young age. Compared to the higher social classes, low levels of SOC were more common in the lower classes. The association of child chronic health complains with parental poor SOC was found to be disability specific (diabetes, epilepsy, and psychiatric problems). Parents of children with diabetes, epilepsy, or psychiatric problems had 2–5 higher odds of having poor SOC compared to parents of children without a specific diagnosis.

Ray et al. (2009) studied 772 parent–child dyads of 10–11-year-old school children in order to find the relationship between food intake and parents' SOC. Lower parental SOC was associated with children's irregular meal pattern, more frequent intake of energy-rich foods, and less frequent intake of nutrient-rich foods. In another study, mothers with lower levels of SOC were more likely to have children with decayed teeth or filled teeth regardless of the child's social class and gender (Bonanato et al., 2009).

In a study identifying the predictors of adaptation and assessing potential moderating effects of parents' sense of coherence and family hardiness on the relationship of severity of illness of a child with asthma, SOC and family hardiness predicted family adaptation. Icelandic mothers perceived their family's adaptation more favorably than American mothers. Regarding the fathers, family demands predicted adaptation. SOC moderated the effect of family demands on adaptation for both parents (Svavarsdottir, Rayens, & McCubbin, 2005).

Intervention programs promoting children's health. In addition to identifying SOC as a significant protective factor related to effective coping, the contribution of the salutogenic paradigm in explaining successful coping with stressors and health promotion has guided the development of intervention programs promoting health and health behavior. The following studies are examples of such intervention programs involving children and their families.

An intervention program based on the salutogenic model promoting oral health resulted in improved oral health. The intervention provided evidence that SOC influenced oral health-related quality of life (Nammontri et al., 2013). Positive health beliefs and higher levels of SOC were found to predict positive health beliefs and fewer symptoms. An additional intervention program focused on promoting play in an after school program (ASP) had considerable potential of promoting the children's SOC. Most of the children in the study experienced their world as comprehensible, manageable, and meaningful. Negative thoughts and feelings were reduced during play. Play offered particularly strong opportunities for the children themselves to shape outcomes, and interact with children, promoting their SOC (Løndal, 2010).

In another intervention program that aimed to promote health resources in children, 226 5–10-year-old school children participated in a longitudinal self-worth reinforcement program. The results showed that developing SOC as a part of promoting mental health in school children is most effective during the early years of childhood. This finding emphasized the need to train professionals within the school (Krause, 2011).

Conclusions and Future Research Directions

The results of the surveyed studies support the conceptualization of the SOC construct as an important personal resource that develops during childhood. Stresses and challenges are a part of children's lives. However, most children who have a strong SOC can transform their potential resources into actuality, thereby promoting well-being. Children and adolescents with a high SOC may have a good comprehension of most of their contextual conditions, situational demands, and personal experiences. They may feel relatively in control of their lives and may possibly consider most of their tasks and participation in age appropriate activities as meaningful, significant, and worth of investing effort. When they face a stressful situation, they are able to select in a flexible manner the appropriate strategies to effectively cope with the stressors. Thus, acquiring a wide range of coping strategies, alongside an emphasis on collaborative activities, developing social partnerships that respect different voices and self-reliance, may enhance the youngsters' resilience and motivation to invest effort in order to reach their preferred goals (Margalit, 1998). Consistency, a special cognitive challenge for children, may strengthen comprehensibility; an overload–under load balance, a special risk for children who struggle with school

demands, may affect manageability; and the participation in socially valued decision making may strengthen meaningfulness (Margalit, 2008).

The results of these studies have clear educational implications for school systems at various age groups in terms of prevention and intervention planning. The early manifestations of the developing SOC, as a personal resource, and the results that indicate that stresses and difficulties are disclosed in lower levels of SOC, call for early awareness and empowering programs within educational systems. In addition, the results that show the impact of effective intervention not only on better academic functioning, but also on friendship developing and significant growth in coherence, justify focused attempts on early intervention before SOC is structured and stabilized. The studies demonstrated the importance of early comprehensive intervention, as well as the significant value of preventive measures through sensitizing teachers not only to meet crises and difficulties, but especially to provide attentive support to the children's experiences. Preventive programs that empower children's abilities to integrate their thinking and learning skills with the abilities to regulate their feelings (emotion regulation) and actions (behavioral competence) promote growth, effort, and motivation (Idan & Margalit, 2011). School-based intervention programs and teachers' training promoting salutogenic approaches in class are required alongside family-based interventions and parents' training to promote salutogenic approaches in the home.

In the reviewed studies, children with typical development and children with developmental disabilities, learning disabilities, and various additional adjustment challenges were included. Most children, who reported higher levels of loneliness, also experienced a low sense of coherence. In several studies, the low sense of coherence was related to children's current distress, as well as to early expressions of adjustment difficulties and to family climate. Mothers' sense of coherence was found as an important personal resource that enabled successful attachment relations and was related to children's sense of coherence (Al-Yagon & Mikulincer, 2004). Special attention was provided to groups of children with developmental or contextual challenges that reported levels of sense of coherence compatible with their typical developing peers. Thus, the awareness of the fact that difficulties never appeared in isolation, encouraged the multidimensional prevention and intervention approaches that treated not only academic or behavior challenges, but supported the whole child who had been developing satisfactory social relations while struggling with difficulties, to support coping and celebrate success and competencies. The salutogenic paradigm provides a structure to this planning, by emphasizing comprehensibility (explaining and clarifying the goals and the procedures), manageability (teaching the

required skills to reach these goals), and meaningfulness (enhancing motivation and involvement in the effort).

Research presented in this review demonstrated the importance of the salutogenic approach in developmental research of children and adolescents, and its potential for educational planning. The studies emphasized the interacting role of academic demands and social challenges with the SOC, clarifying the dynamic interactions between academic and socioemotional factors and children's readiness to treat their difficulties as challenges worthy of effort investment. These findings emphasized the major role of resilience approaches, considering SOC as a predictor in explaining well-being and adjustment, and calling for future development of comprehensive educational intervention programs (Idan & Margalit, 2011).

In order to benefit schools and children from the salutogenic approach, two future research directions are needed. First, there is a need for longitudinal studies that will document changes and stabilities in the development of CSOC. Through longitudinal studies we are able to clarify the interactions between the stabilization and the flexibility of children's SOC within different contextual conditions. Second, research calls for cross-cultural comparisons of the sense of coherence development. There is a need for a coordinated international collaboration for longitudinal research to explore the interactions of SOC between cultures, families, schools, communities, and children's different growth paths.

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Salutogenesis: Sense of Coherence in Adolescence

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Introduction

The adolescent, at the very best, can only have gained a tentative strong SOC, which may be useful for a short-range prediction about coping with stressors and health status (Antonovsky, 1987, p. 107).

Adolescence is a period of growth and development between childhood and adulthood. This developmental period involves new demands on the individual. A major task of this period is moving toward independence from dependency on the family; therefore, peers become a crucial socialization circle for the adolescent (Romeo, 2013; Spear, 2013). During this period, a number of physiological and cognitive changes occur while individuals are confronted with developmental tasks and challenges. During the last decade, there has been a marked increase in neurobiological research on the cognitive, emotional, and behavioral changes as well as development that occur during adolescence. These studies have found that cognitively, the adolescents as the adults are capable to suppress responses when no emotional information is provided (Tottenham, Hare, & Casey, 2011). However, it is the avoidance of social cues during challenging situations in which adolescents have a difficulty to make a proper and rational response (Casey & Caudle, 2013). Thus, it seems that tension between regulation of behavior and sensitivity to positive environmental cues makes the response of the individual during the period of adolescence more complex (Somerville, Hare, & Casey, 2011).

In line with the positive youth development perspectives (Damon, 2004), there is a growing recognition of the individuals who are eager to explore the world, to acquire competence and to struggle with challenges and difficulties. This approach focuses on productive activities rather than on trying to cure and treat maladaptive tendencies. The agenda is to maximize the potential of the individual and by this to reduce the potential of hazardous, destructive, and antisocial behaviors (Lerner & Benson, 2003). The period of adolescence is a particularly important developmental stage, since social, emotional, and cognitive processes are involved in the attempts to navigate the increasingly complex relationships (Blakemore & Mills, 2014). Indeed, it is during these years that abstract thinking and cognitive processing develops along with enhanced moral reasoning and judgment. These positive processes enable the adolescent to explore the world, gain competences, and contribute to the world surrounding him/her (Damon, 2004). As children grow older, their coping repertoire expands and shifts from primarily external, behavior-oriented to more internal, cognitively based strategies (Aldwin, 1994).

The advanced forms of reflection such as the ability to consider things in hypothetical and abstract terms and the ability to monitor one's own cognitive activity during the process of thinking enable adolescents to see from the perspective of other persons, to plan ahead, to anticipate the future consequences of an action, and to offer alternative explanations of events. Cognitive mastery is therefore an important contribution to young people's ability to manage or regulate their feelings and to control their emotions and/or avoid being overwhelmed by them (Garnefski et al., 2001).

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These abilities have also the potential to influence the emotional–motivational and behavioral components of SOC. It is during these years that as young people move from one experience of using certain coping resources to another, different resources can be reviewed and crystallized.

In the following section, we present special adjustments that have been done for the SOC questionnaire along with multitudes studies that focused on this development period and took different directions in the study of salutogenesis during adolescence.

SOC Studies During Adolescence

Since there are hundreds of papers and studies regarding adolescents and SOC, for the purpose of this chapter we decided to narrow down our search and thus the amount of papers included in this review. Our search included sites such as—Ebsco, PsycInfo, PubMed, SocioFile, and GoogleScholar, and in addition we searched the sites of Sage, Springer, and Wiley. We looked at the last decade from 2003 to 2013 and included the search words: adolecs*, youth, sense of coherence, and salutogenesis. We came up with more than 60 articles and research from 18 countries including Scandinavian countries, South Africa, Europe, Middle East, Australia, and the United States. Table 14.1 summarizes these studies.

The following themes emerged from the identified studies:

Adaptations of the Sense of Coherence Questionnaires

Based on the original SOC questionnaire (Antonovsky, 1983), several researchers have examined the adaptability of the questionnaire to adolescent population. For example, the adolescent sense of coherence scale was adjusted to fit adolescents' characteristics—that is, development of self-identity, orientation to one's self-society, confusion, unpredictable changes, close emotional ties with parents for the development of open communication, stability of the community, etc. Thus, several items were removed from the original 29 items scale and other were rephrased to make sure that the adolescents understand the items (Antonovsky & Sagy, 1986), ending up with the final version of 13 items which has been considered a single factor and not the three separate components—meaningfulness, comprehensibility, and manageability (Hagquist & Andrich, 2004). Since the

original use of the updated scale many studies used this version and reliability proved to be very good ($\alpha \approx .80$).

Another approach to the adaptation of the scale to the adolescence age stage was based on the use of the children version (CSOC) without the examples and distractors that were requested for the younger children. The description of the CSOC can be found in the chapter on children. The adolescence adaptation from the CSOC consisted of 16 items (e.g., "When I want something I'm sure I'll get it"; "When I need help there is someone around to help me"; on a five-point Likert type scale ranging from 1 (never) to 5 (always)). A Cronbach's alpha of .78 was obtained (Levi, Einav, Ziv, Raskind, & Margalit, 2014).

Sense of Coherence Construct During Adolescence

The stability question regarding SOC accompanied this construct since the beginning of research about it. Antonovsky and Sagy (1986) argued that SOC should be strengthening during adolescence, and stabilized toward the end of this developmental period. However, studies which addressed the issue of age and the stability of SOC revealed inconsistencies (Apres et al., 2013; Ayo-Yusuf, Reddy, & Van Den Borne, 2008; García-Moya et al., 2013; Kristnsson & Ohlund, 2005; Moksnes, Espnes, & Lillefjell, 2012). Indeed, Eriksson (2007) have stated that SOC is likely to vary during adolescence due to developmental changes, transitions, and challenges. While some researchers did not find differences among various age groups (Honkinen et al., 2008) and claimed the existence of SOC stability during adolescence (Kroninger-Jungaberle, 2013), others focused on the variability between groups of adolescents between younger and older adolescents (García-Moya et al., 2013) as well as between groups with high vs. low scores of SOC. The group with lower SOC reported more variability in its SOC scores (Buddeberg-Fischer, Klaghofer, & Schnyder, 2001).

Moreover, during periods of political violence, studies have shed light on the impacts of fragile periods and documented a drop in SOC levels during acute stress situations. However, once the acuteness is over, the SOC gains back its strengths (Braun-Lewensohn, Sagy, Sabato, & Galili, 2013). Nevertheless, when adolescents face chronic states of stress, such as longitudinal missile attacks, the deterioration of the SOC remained stable over time (Braun-Lewensohn & Sagy, 2010).

Table 14.1 SOC Studies during adolescence

Author	Year	Place	Population	Variables	Results
1. Apers et al.	2013	Belgium	498 14–18 years longitudinal	QoL, SOC, age, gender, educational level, disease complexity, prior surgery	The higher the SOC the higher the perceived health
2. Ayo-Yussuf et al.	2008	South Africa	8th grade, 3 waves (18 months) 970 adol adolescents	SOC, smoking, gingival health, socioeconomic status, age, gender, tooth brushing	Adolescent smoking and SOC levels are independent predictors of self-reported gingivitis. Therefore, in addition to plaque control, smoking prevention and the teaching of stress-coping skills may be important interventions for promoting adolescents' gingival health
3. Ayo-Yussuf et al.	2009	South Africa	8th grade 774 baseline; of those not consistently brushing twice daily 578 were followed after 18 months	Sociodemographic, depression, smoking, dental treatment, SOC, tooth brush motivation	SOC, living with mother, smoking, being depressed vulnerable were associated with the transition to twice daily tooth brushing
4. Ayo-Yussuf et al.	2013	South Africa	1st wave- 13–15 years; 2nd wave after 6 months.; 3rd wave after 1.5 years	SOC, exposure to household smoke	Lower SOC related to use of alcohol and binge drinking at base line; higher SOC linked to more commitment to stay smoke free. SOC better predictor than self-efficacy
5. Baker et al.	2010	Malaysia	439 12 and 13 years	SOC, self-esteem, health locus of control, parents' income and education, oral health status	SOC the most important psychosocial factor for oral health status, better health perception and functioning as well as quality of life
6. Bauminger et al.	2008	Israel	196 12–15 years	SOC, self-disclosure, intimacy, attachment style	SOC, self-disclosure and attachment style predicted intimacy. Self-disclosure predicted intimacy especially at low levels of SOC. While SOC and disclosure had direct effect on intimacy, avoidant and anxious attachment had indirect effect via SOC and disclosure
7. Blom et al.	2010	Sweden	66 nonclinical females (15.9–17.7) 73 clinical f (14.5–18.4)	SOC, anxiety, depression, self-assessed health, physiological parameters, emotional scales	The SOC scale did not appear to be a measure of a distinct salutogenic construct, but an inverse measure of persistent depressive symptoms and generalized social anxiety similar to the diagnostic criteria for major depressive disorder (MDD), dysthymic disorder, generalized anxiety disorder (GAD) or generalized social anxiety disorder (SAD) according to DSM-IV
8. Braun-Lewensohn et al.	2010	Israel	114 (2006); 83 (2009) 12–18 years	SOC, hope, values	SOC, hope, and values decreased following years of political violence
9. Braun-Lewensohn et al.	2011	Israel	230 12–18 years	Anxiety, anger, SPD, SOC, exposure, demographics	SOC mediated the relationships between exposure to missile attacks and stress reactions
10. Braun-Lewensohn et al.	2011	Israel	1609 12–18 years Jews, Druze, Muslims after bush-fire	Personal and community SOC, anxiety, anger, SPD	Personal SOC stronger among majority (Jews); predicted stress in all groups; community SOC strongest among Druze predicted stress only for Druze

Table 14.1 (continued)

Author	Year	Place	Population	Variables	Results
11. Braun-Lewensohn et al.	2011	Israel	12–18 years	Anxiety, anger, SPD, cognitive appraisal, coping strategies, SOC	SOC was the strongest direct and indirect predictor of stress. Found to be important also in acute stress situation
12. Braun-Lewensohn et al.	2011	Israel	12–18 years Jews—138, Bedouin-Arabs-84 during missile attacks	Anxiety, anger, SPD, SOC, hope	SOC higher among Jews; anger and collective hope higher among Arabs; SOC explained stress among Jews; Hope among Arabs
13. Braun-Lewensohn et al.	2013	Israel	12–18 years 104 during disengagement from Gaza; 77 3 months after disengagement; 115 5 years after disengagement	Anxiety, anger, SOC, sense of community	Levels of anxiety (but not of anger) dropped after 5 years; SOC decreased at 3 months but recovered at 5 years. SOC was the strongest predictor of stress and best predicted anxiety at 3 months and 5 years
14. Braun-Lewensohn	2013	Israel	12–18 years—A year after a natural disaster of bush fire Jew—413, Druze—356, Muslims—374	Personal and community SOC, anxiety, anger, psychological distress, demographics	The Jewish majority had higher personal SOC compared to minority groups. Community SOC was highest among the collectivist Druze culture. Personal SOC had significant contribution to stress reactions in all cultures. Community SOC had contribution to stress only among Druze
15. Broni-kowski	2010	Poland	38 boys and 33 girls—experimental group; 34 boys and 32 girls control (13 years)	SOC, physical fitness, body constituency, frequency of leisure-time physical activity	Boys and girls from intervention groups maintained high level of leisure-time physical activity after the program. No distinctive differences were found in case of body constituency between experimental and control groups except for muscle mass and sum of skinfolds in girls. In sense of coherence, gradual increase was noticed from pretest to follow up in experimental boys, whereas in girls it was increased at posttest but later at follow-up it dropped. In control groups, level of coherence was declining during the whole duration of the study. Confirm effectiveness of a multilevel intervention designed to increase sense of coherence and promote self-responsibility in health-related lifestyle
16. Broni-kowski et al.	2009	Poland	199 13-year boys: experimental vs. nonexperimental group	SOC, cardiorespiratory fitness, physical activity. Intervention: physical education program for responsibility of physical activity	Only experimental group improved SOC and cardiorespiratory fitness
17. Dorri et al.	2010	Iran	1054 6th graders	Sociodemographic, tooth brushing, SOC	Higher SOC more tooth brushing, regardless gender and father's education; boys stronger SOC than girls
18. Edbom et al.	2010	Sweden	312 twins 16 and 21 years	ADHD, SOC (longitudinal)	High SOC protective of ADHD
19. Evans et al.	2010	USA	1619 8th and 10th grade	SOC, protection and risk factors, gender	Multiple ecological domains are useful for understanding SOC

(continued)

Table 14.1 (continued)

Author	Year	Place	Population	Variables	Results
20. Feldt et al.	2005	Finland	202 8, 9, 14, 27, 36, and 42 years longitudinal	Child-centered parenting, parental SES, school success in adolescence, education, career stability, adult SOC	Child-centered parenting, high parental SES, school success at 14 years were indirectly associated with SOC via education and career stability
21. Fried et al.	2010	Israel	1069 16–19 years	Gamboling, temperament, SOC, exposure to advertising, emotionality, activity, sociability	No relationships between SOC and gamboling behavior or problems
22. García-Moya et al.	2012	Spain	7580 13–18 years	Family dimensions, gender, age, SOC	No gender difference on SOC; younger adolescents—higher SOC; family var. (easy communication and parental knowledge) accounted for 18 % of SOC
23. García-Moya et al.	2013	Spain	7580 13–18 years	Health behavior, school factors, SOC	Supportive school climate and SOC are relevant to adolescent health; SOC most significant in predicting school demands stress. High SOC students reported less school stress
24. García-Moya et al.	2013	Spain	5475 15–18 years	SOC, alcohol consumption, tobacco use, life time drunkenness	Higher SOC linked to reduced involvement in tobacco use and drunkenness. It was not associated with current drinking. SOC had effect on most groups but not on those who consume illegal drugs
25. García-Moya et al.	2013	Spain	4943 13–18 years	SOC, parent–child relationships, teacher and classmates support, behavior in peer group, neighborhood assets	Parent–child relationships emerged as the main contributor to SOC in all sample; also the other contextual factors had significant contribution to SOC
26. García-Moya et al.	2013	Spain	7580 13–18 years	SOC, neighborhood risk and assets	Neighborhood risks were negatively associated with SOC; neighborhood assets especially relationships with significant adults positively associated with SOC
27. Gauffin et al.	2010	Sweden	97 epilepsy 13–22 1st wave, 18–27 2nd wave	Self-esteem, SOC, medical condition	SOC and self-esteem decreased in the 2nd wave; those who were free of seizures had higher SOC; no association between seizure frequency and SOC
28. Geckova et al.	2010	Slovak	1992 14–23 years—secondary schools	SES, school factors, perceived social support, SOC, health	Association between: educational aspiration, parental education level, father unemployment, school atmosphere, attitudes toward school, social support from father and SOC; SOC contributes to reporting of educational aspiration to all students
29. Glanz et al.	2005	USA	3438 7th grade	Ethnicity, SOC, tobacco use	Ethnic differences in smoking; higher SOC lower risk for smoking in all groups
30. Gustafsson et al.	2010	Sweden	15 adolescents exposed to child abuse	SOC, externalizing, internalizing symptoms, trauma symptoms	SOC correlated mostly to externalizing and internalizing symptoms but not to trauma symptoms

Table 14.1 (continued)

Author	Year	Place	Population	Variables	Results
31. Hagquist et al.	2004	Sweden	889 18 years	SOC	The questionnaire could separate the adolescents from general population. The SOC scale should be dealt with as a measure of one global factor
32. Hansson et al.	2004	Sweden	186 (around 14–15 at intake) adolescents with conduct disorder and juvenile delinquency (at least 20 at follow-up after intervention)	SOC, life satisfaction, symptoms checklist, antisocial behavior, global functioning, social functioning, social belonging	SOC is low at follow-up and symptoms are higher compare to regular population
33. Honkinen et al.	2008	Finland	846 15 years. 792 at follow-up 18 years	SOC	Overall, there were no changes in SOC scores in the entire sample
34. Honkinen et al.	2009	Finland	12, 15, 18 years longitudinal 15 years follow-up	Psychological symptoms in childhood, SOC in adolescence	Destructive behavior at 3 years, attention problems at 12 years, anxiety delinquency, somatization at 15 years predicted poor SOC at 18 years; problems reported by adolescents explained better poor SOC than problems reported by parents
35. Honkinen et al.	2005	Finland	1231 12 years	Health behavior, SOC, school marks	Physical exercise most strongly associated with health; SOC and social support also associated with health
36. Idan et al.	2013	Israel	856 10th–12th grade 529 achieving students; 327 LD students	SOC, psychological needs, loneliness, family climate, hope, academic and self-efficacy, effort, grades	SOC positively correlated: competence/autonomy, relatedness, self-efficacy, family cohesion, hope, effort. Negatively correlated: loneliness. SOC contributed to psychological processes of all students
37. Jaakkola et al.	2013	Finland	777 18 years old	SOC, dental fear-anxiety, gender, education	High fear lower SOC also when controlling for gender and education
38. Koushede et al.	2009	Denmark	1393 7th–9th grade	Demographics, medicine use, psychosocial aspects, SOC	More medicine use linked to lower SOC; frequency of headaches modifies association between SOC and medicine use
39. Koposov et al.	2003	Russia	14–19 years court ordered juvenile detention center	Exposure to community violence, SOC, psycho pathology, problem behavior	SOC partially mediated victimization and psychopathology. Higher SOC potentially reduced psychopathology
40. Kris-tensson et al.	2005	Sweden	253 16–21 years	SOC, coping resources, aggression teacher evaluation, school marks, gender, age	SOC and coping resources positively correlated with school marks; aggression negatively correlated with school marks; females higher on coping resources but lower on SOC and aggression
41. Kroninger-Jungaberle et al.	2013	Germany	155 16 years and 19 years (longitudinal)	SOC, self-efficacy, mental health symptoms	SOC and self-efficacy predicted negative symptoms at 16 years and at 19 years. Resilience and symptoms at time 1 predicted resilience and symptoms at time 2. SOC at age 16 predicted mental health at 19. SOC is already stable at adolescence

Table 14.1 (continued)

Author	Year	Place	Population	Variables	Results
42. Lackaye et al.	2006	Israel	571 7th grade with and without LD	Grades from school records, gender, age, leisure activity, satisfaction from these activities, academic help school or private, diagnosed LD, effort, academic self-efficacy, loneness, mood, SOC, hope	Achievement, academic self-efficacy, negative mood, hope and SOC predicted effort investment for students with LD. The importance of SOC and hope in this context is highlighted
43. Levi et al.	2013	Israel	289 10th grade students	SOC, hope, academic expectations, grades, self-efficacy	SOC and emotional self-efficacy contributed to hope which in turn had a significant effect on grade expectation that predict academic achievement
44. Luyckx et al.	2012	Belgium	380 14–18 years (other older groups)	SOC, heart disease	Adolescents' SOC lower than young employed adults; heat disease correlated higher SOC
45. Mattila et al.	2011	Finland	15 years	SOC, QoL, health behavior, social competence	Higher SOC related to lighter use of alcohol, no smokers, better oral care, and better social competence
46. Modin et al.	2011	Sweden	7930 9th graders	Subjective health, school working conditions, school SOC	High levels of control and a strong school-related sense of coherence can protect against the more detrimental effects on health that high demands at school may cause
47. Marsh et al.	2007	USA	1619 middle school	SOC, risk and protective factors	Social support, anger expression, family conflict, neighborhood cohesion all were predictors of SOC; gang membership predictor of SOC for boys; age predictor of SOC for girls
48. Myrin et al.	2008	Sweden	383 14–15 years	SOC, psychosocial factors	Girls negative outcomes on psychosocial factors: depression, life satisfaction, worries about family member, poor psychosomatic health; all these related to low SOC
49. Myrin et al.	2006	Sweden	383 14–15 years	Socioeconomic, SOC, health behavior—tobacco use, alcohol consumption, eating habits	SOC lower among girls; Low SOC girls have more health behavior problems; high SES with low SOC adolescents related to
50. Moksnes et al.	2013	Norway	1183 13–18 years	Stress, SOC, emotional symptoms	Girls higher on: stress, peer pressure, home life, school performance, school leisure, conflict, emotional symptoms; boys higher on SOC; SOC moderated the association between stress-related peer pressure and depression symptoms for both genders
51. Moksnes et al.	2011	Norway	1183 13–18 years	Stress, subjective health complaints, SOC, peer pressure, home life, school attendance	Girls higher stress than boys; boys higher SOC than girls; SOC inversely related to health complaints and stress; peer pressure, home life, and school attendance higher stress. No moderation of SOC
52. Moksnes et al.	2012	Norway	1209 13–18 years	Depression, anxiety, SOC, gender, age	Girls more anxious and depressed; boys higher SOC; Higher SOC less anxiety and depression—the association is stronger for girls

(continued)

Table 14.1 (continued)

Author	Year	Place	Population	Variables	Results
53. Nilsson et al.	2007	Sweden	4305 16 and 19 years	SOC, alcohol-related behavior problems, alcohol intoxication, alcohol consumption	SOC and alcohol intoxication were related to alcohol problems. SOC despite intoxication protect from alcohol-related problems
54. Nielsen et al.	2007	Denmark	3258 13–18 years	SOC, health reported by teachers and school doctor (illness symptoms), stress	SOC and stress were associated with health; girls who report low SOC and exposure to stress had more illness symptoms; this diminished in high SOC girls
55. Nio et al.	2010	Japan	12–18 years cardiac disease = 534; healthy = 406	SOC, disease, background factors	Boys had higher SOC than girls; sick adolescents higher SOC than healthy; lower on illness condition scale higher on SOC
56. Neuner et al.	2011	Germany	770 14–17 years longitudinal	SOC, QoL, heart defects, well-being, self-esteem	SOC correlated with all QoL, well-being scales in both times. The strength of the relationships differed
57. Peled et al.	2013	Israel	284 12–18 years	Anger, hope, type of community, community perceptions based on personal SOC components	Type of community and community perceptions explained anger and hope
58. Ristkari et al.	2009	Finland	2314 boys 18 years	Psychopathology, teachers and parents reports, self-report, depression, SOC	Low parental level of education (at age 8) and non-two biological parents at home predicted lower SOC; internalizing symptoms at 8 years (parents report) and depression symptoms at 8 years (self-report) predicted lower SOC; comorbidity of internalizing and conduct problems had strongest association with low SOC
59. Sagy et al.	2009	Israel	303 Northern- acute stress; 114 South—chronic stress 12–18 years	Anxiety, SPD, SOC, family SOC, sense of community	Higher anxiety in acute stress group; higher SPD in chronic stress group; SOC and family SOC had better predictive power in chronic stress group (political violence)
60. Simonsson et al.	2008	Sweden	3998 16 and 19 years	Psychosomatic complaints SOC	Correlations between psychosomatic symptoms and SOC. Weak SOC higher symptoms
61. Sollerhed	2005	Sweden	301 16–19 years	SOC, attitudes to physical education, exercise in leisure time, GPA, PE grade, subjective health, feeling in school, allocated time to PE	Variables related to attitudes to PE: strong SOC, high physical capacity, high leisure time, physical activity, high grades in PE, and little time spent watching TV. Variables related to strong SOC: positive attitudes to PE, high grades in PE, very good subjective health, and feeling comfortable in school
62. Togari et al.	2012	Japan	1505 adolescents 989 legal guardians	Adolescents: SOC, positive life experience at home. Guardians: SOC, family relations	Boys: mothers' SOC directly related to boys' SOC regardless family relations and participation in decisions at homes; Girls: mothers' SOC indirectly related to girls' SOC through participation in decision making at home

Table 14.1 (continued)

Author	Year	Place	Population	Variables	Results
63. Wang et al.	2012	Australia	119 12–20 years with heart disease	Anxiety, depression, optimism, social support, SOC	Relatively high anxiety and depression; optimism, social support and SOC predicted anxiety, and depression (in this order)
64. Winding	2013	Denmark	3058 14–15 years	SOC, school performance, health, vulnerability	Low grades when completing compulsory school predicted not having completed a secondary education by age 20/21. Low sense of coherence in childhood was associated with dropping out from a vocational education. Low general health status was associated with dropping out or never attaining a secondary education and overweight was associated with never attaining a secondary education
65. Woolley	2006	USA	2099 middle and high school students	School safety, teacher's support, neighborhood satisfaction and safety, neighborhood peer culture, family satisfaction, family integration, family support, home academic culture, problem behavior, school coherence, academic performance	Family with cooperative and supportive interactions such as work together to solve problems, provide each other with loving support, talk about things youth study in school, and encourage youth to do well in school contribute to stronger school coherence is strongest among their youth. Also teacher's support is an important factor for school coherence
66. Zimprich et al.	2006	Switzerland	1107 7th–9th graders	Examination of the factorial structure of SOC 13	For both younger and older adolescents two factors emerged: one factor reflected manageability and comprehensibility and the other reflected meaningfulness

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Box 1: Coping Strategies as Mediators of the Relationship Between Sense of Coherence and Stress Reactions: Israeli Adolescents Under Missile Attacks

Orna Braun-Lewensohn, Shifra Sagy, Guy Roth—Anxiety, Stress & Coping, 24(3), 327–341: 2011.

Studies on adolescents have indicated that during adolescence SOC may play a protective role similar to that of the mature adult SOC (e.g., Braun-Lewensohn & Sagy, 2010). However, in several studies conducted during acute stress situations (such as wars, terror, and evacuations), SOC was found weaker effect of explanation of the variance of stress reactions than in chronic stress situations (e.g., Sagy & Braun-Lewensohn, 2009). Thus, the present study sought to explore the contribution of SOC in an acute stress situation by trying to find other mediating factors which could explain the outcomes of stress reactions. Employing the interactionist cognitive approach (Lazarus & Folkman, 1984), we considered two variables that could be significant in mediating the relationship between the personal SOC and stress reactions: cognitive appraisal and coping strategies. The importance of this study is in its being a field research carried out in the midst of the stressful situation of war and severe missile attacks. Although previous studies indicated SOC as a weak factor in explaining stress reactions during acute stressful situations, the present study highlights the possibility that, through the mediating process of coping strategies, SOC could still have high explanatory effect on stress reactions not only in chronic states. The results of this study have drawn attention to the importance of SOC as a resilience factor during an acute stressful situation.

Other demographic characteristics, apart from age, have significant roles in the determination of the SOC levels. Gender differences were examined, and many studies showed that the SOC scores of boys were higher than the scores of girls (Apres et al., 2013; Dorri, Sheiham, Hardy, & Watt, 2010; Evans, Marsh, & Weigel, 2010; Kristensson & Öhlund, 2005; Moksnes, Rannestad, Byrne, & Espnes, 2011; Moksnes et al., 2012; Nio, 2010). In addition, socioeconomic status plays an important role in the SOC prediction. Thus, higher levels of parents' education (Feldt, Kokko, Kinnunen, & Pulkkinen, 2005; Geckova, Tavel, van Dijk, Abel, & Reijneveld, 2010; Ristkari et al., 2009), higher economic status (Geckova et al., 2010), and living with two parents (Ayo-Yusuf, Reddy, & Van Den Borne, 2009) have been important indicators of stronger SOC. Lastly, membership in a minority group in different cultures around the world predicted lower SOC than the majority counterparts members (Braun-Lewensohn, 2014; Braun-Lewensohn & Sagy, 2011a, 2011b; Glanz, Gertraud, & Carlin, 2005).

SOC, Health, Mental Health, and Psychosocial Behavior

Examining the various studies, we found that the relations of health, mental health, and psychosocial behaviors with SOC were explored. More specifically, researchers investigated the SOC as a predictor of health outcomes, mental health, and diverse health promoting behaviors during adolescence.

Several studies examined the relations between the SOC and general health. They reported that higher SOC has been related to a better perceived health while lower SOC was related to greater amounts of medication usage. Moreover, SOC was negatively related to reported health problems (Blom, Serlachius, Larsson, Theorell, & Ingvar, 2010; García-Moya et al., 2013; Geckova et al., 2010; Honkinen, Suominen, Välimaa, Helenius, & Rautava, 2005; Koushede & Holstein, 2009; Mattila et al., 2011; Modin, Östberg, Toivanen, & Sundell, 2011; Myrin & Lagerström, 2006; Moksnes et al., 2011).

Other examinations related to health focused on groups with specific health problems. For example, surprisingly, adolescents with heart problems were found to have higher SOC compared to healthy adolescents. These results were explained by the fact that youngsters with such chronic disease have learned to cope with their problem which increased their manageability, besides having high existential implications that increases their meaningfulness. Moreover, a supportive home environment experienced by these adolescents emphasize specific life events as being more comprehensible, manageable, and meaningful hence, nurtured feelings of SOC (Luyckx, Missotten, Goossens, & Moons, 2012). More expected results were found for adolescents with epilepsy where decreased SOC was found in the long run, reflecting the experience of losing control during seizures and difficulty in assessing when to expect the next seizure. Following this line, those adolescents with no seizures had higher SOC (Gauffin, Landtblom, & Räty, 2010).

Mental health has been the focus of numerous studies that examined diverse outcomes. Stress-related outcomes such as anxiety, anger, depression, psychological distress, and other emotional and internalizing or externalizing problems were examined in the context of political violence (Braun-Lewensohn & Sagy, 2011a, 2011b, 2010; Braun-Lewensohn & Sagy, 2010; Sagy & Braun-Lewensohn, 2009) and with regard to challenging and extreme life events such as child abuse (Gustafsson et al., 2010) or juvenile delinquency (Koposov et al., 2003). However, adolescents were also examined during regular daily life with 'normal' life stressors, such as academic, school, or peer pressure as well as family conflicts (Moksnes et al., 2012; Moksnes, Espnes, & Haugan, 2013; Nielsen & Hansson, 2007; Ristkari et al., 2009; Simonsson, Nilsson, Leppert, & Diwan, 2008). All these studies confirm that the SOC can be considered a resilient factor. It can be concluded that a strong SOC predicts reduced stress and decreased internalizing or/and externalizing problems.

Moreover, examining the relationships of SOC with psychosocial behaviors even strengthens the consideration of SOC as a resilient factor. Accordingly, results of various studies showed that adolescents with higher SOC reported a more healthy life style, a better quality of life, and well-being (Honkinen et al., 2009; Neuner et al., 2011). The healthy lifestyle related on one hand to physical activities and exercises (Bronikowski, 2010) and on the other hand to smoking habits, alcohol abuse (García-Moya et al., 2013, 2013a; Myrin & Lagerström, 2006; Nielsen & Hansson, 2007), and eating habits (Myrin & Lagerström, 2006). Similarly, the relations between SOC and oral behavior were reported. Higher SOC was linked to lower gingivitis, more willingness to change tooth brush habits, and especially increased tooth brushing (e.g., Ayo-Yusuf, Reddy, & Van Den Borne, 2008, 2009; Dorri et al., 2010).

Ecological Contexts: Family, School, Peers, and Community

Ecological contexts (Bronfenbrenner, 1977, 1979; Bronfenbrenner & Morris, 2006) extend the consideration from a focus on personal levels to awareness and sensitization to contextual characteristics and systemic consideration such as the families, schools, and communities. Several, family-related factors were examined in relation to SOC. For example, open family communication (García-Moya

et al., 2013; Marsh et al., 2007) focused parenting style (García-Moya et al., 2013) and parents' knowledge regarding their children activities (García-Moya et al., 2013) were considered positive contributors to the development of a strong SOC. In addition, child-centered parenting during adolescence (examined within a longitudinal paradigm) predicted a stronger SOC at adulthood (Feldt et al., 2005).

In addition to examining family contexts and factors which could enhance or reduce personal SOC, few studies also related to family sense of coherence as another source to rely on when facing difficulties and/or stressful situations. Likewise, the personal SOC it was found that also family SOC is a resilient factor, and adolescents with stronger family SOC reported reduced stress (Sagy & Braun-Lewensohn, 2009; Sagy & Dotan, 2001).

Another important ecological system is the school. While the family dimension produced mainly studies that pinpointed attention at the contribution of family characteristics to the development of SOC, studies of schools focused attention on outcomes, examining the adolescents' achievement and adjustment, and their relationship to SOC as a mediation factor. Within the educational systems, a stronger SOC predicted high grades, enhanced academic motivation, and success. A lower stress levels were also reported as related to stronger SOC (Honkinen et al., 2005; Kristensson & Öhlund, 2005; Lackaye & Margalit, 2006). Moreover, stronger SOC was linked to social competence (Mattila et al., 2011; Moksnes et al., 2011).

The school system provides a unique opportunity to look at special populations with regard to SOC. Adolescents with learning disabilities are an additional example to the importance of the SOC (Idan & Margalit, 2014; Lackaye & Margalit, 2006). These youngsters are identified by their chronic academic challenges emerging from neurodevelopmental difficulties. Their difficulties at school systems remain a continuous source for increased stress, endless day-to-day struggling with age-appropriate academic roles, and with social and emotional consequences. Indeed, their sources of stress are not dramatic, but their chronic impact are expressed in lower SOC. Studies placed the SOC as a mediator of hopeful thinking, predicting adjustment and effort investment in school. The adolescents' systems, such as families, schools and communities, may further clarify the important role of the SOC and the factors that predict its development.

The focus on peer relations and community atmosphere produced studies which explored these factors as predictors to SOC development. An additional group of studies explored SOC as a collective construct contributing to the mental health of adolescents. Exploring SOC as dependent variable, it seems that social support (Marsh et al., 2007) neighborhood or community cohesion (García-Moya et al.,

2013; Marsh et al., 2007; Peled, Sagy, & Braun-Lewensohn, 2013) and success in school (García-Moya et al., 2013) are all constructive in the development of strong SOC.

In a different vein, and as an experience to expand SOC from personal to collective level an adjusted instrument, sense of community coherence, that includes Antonovsky's components of personal SOC—comprehensibility, manageability, and meaningfulness (Braun-Lewensohn, 2014; Braun-Lewensohn & Sagy, 2011b; Peled et al., 2013) was developed. Comprehensibility refers to the sense of predictability, safety, and security felt by members of the community and the extent to which that community is understandable. A community's manageability expresses its ability to assist its members, via treatment providers and group programs, among others, in times of crisis and distress. Lastly, the higher the level of meaningfulness among the members of a community, the more able they are to express themselves and the greater the likelihood that they will feel satisfied with and challenged and interested by what the community has to offer them (Braun-Lewensohn & Sagy, 2011b; Sagy & Dotan, 2001). Recent studies showed that indeed sense of community coherence is another source of support to effective coping during adolescence when facing acute or chronic types of stress especially among collectivist cultures (Braun-Lewensohn, 2014; Braun-Lewensohn & Sagy, 2011a, 2011b; Peled et al., 2013).

Conclusions, Implications, and Future Research Directions

This chapter focused on sense of coherence and salutogenesis during the developmental period of adolescence. As noted earlier in this chapter, the uniqueness of this developmental stage is the many challenges and changes which individuals are going through during these years. While in many ways the adolescents appear to function similar to adults, there are numerous cognitive, biological, and behavioral processes which are being formed and shaped during these years in the paths to maturity and normative adulthood.

A recent review on salutogenesis and the concept of SOC examined the influence of different factors such as gender and age as well as different developmental contexts (family, school, peers, and neighborhood) on the development of SOC (Rivera et al., 2013). In our current review, we extended conceptualization and research results regarding SOC during this important developmental period of adolescence within a different orientation. Mainly we addressed the way in which the SOC questionnaire was adopted to fit adolescent populations, as well as, the clarifying ways how SOC is linked to different health, mental health, and psychosocial behavior in different ecological contexts. We

conclude that the review of studies from around the world in the last decade demonstrated that personal and systemic (i.e., family and community) SOC are meaningful resources for effective coping with a wide variety of stressful situations. The survey of the studies shows that the SOC may be considered as a protective factor for adolescents in different cultures. During adolescence, the SOC may contribute to moderating and mediating stress experiences and may also play a protective role similar to that of the mature adult SOC.

The educational and community implications of the current consideration of the SOC as a critical resource, calls for the sensitizing educators and community workers to the importance of the salutogenic construct. Future empowering programs should be guided by this construct, leading to the development of prevention/inoculation to stress planning as well as programs promoting positive psychosocial and healthy behaviors and academic success.

Our review raises several directions for future research in the field of salutogenesis and sense of coherence during adolescence. In spite of the many studies that have been conducted and published in the last decades and the important developments in this field, there are still some venues that have been neglected. First, the role of family coherence as a protective factor for health and mental health as well as relationships with success in school and other psychosocial behaviors should be further explored. Moreover, non-Western cultural groups were less studied in this context. When studied, some questions regarding the universality of the concept of SOC were raised (Braun-Lewensohn & Sagy, 2011a, 2011b). Thus, it seems important to further examine this issue. We should focus on the meanings of sense of coherence in such cultures as well as the understanding of the questionnaire and the implication of SOC in such societies.

Box 2: Coping Resources and Stress Reactions Among Three Cultural Groups One Year After a Natural Disaster
Orna Braun-Lewensohn Clinical Social Work, DOI:10.1007/s10615-013-0463-0: 2014

A year after a huge bush fire, adolescents from three cultures—Jews, Muslims, and Druze—located in the Carmel district (the area of the fire) were asked to report their personal and community sense of coherence (SOC) as well as their stress reactions of anxiety, anger, and psychological distress. We wanted to examine Antonovsky's conviction (1987) that sense of coherence (SOC) is a cross-cultural concept by comparing adolescents belonging to the majority group, an individualistic culture (Jews), to members of two minority groups which are collectivistic cultures (Muslim and Druze), in terms of personal and community SOC as well as on stress reactions. We also wanted to determine whether the coping resources explained similarly or differently the stress reactions which were examined. Results show that although levels of personal SOC varied significantly across the groups, with the majority group having the strongest sense of coherence, personal SOC had a strong protective effect against stress reactions in all groups. Community SOC, in turn, had a protective effect only for members of collectivist culture. We can cautiously conclude, therefore, that it may be possible for different cultures to have their own, culturally relevant translations for SOC so that it becomes a meaningful protective factor when confronting stressful situations.

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Older People, Sense of Coherence and Community

Maria Koelen, Monica Eriksson, and Mima Cattan

Introduction

Population ageing is a global trend. For example, in the EU-27 population the share of the older population (65 and above) increased from 13.9 % in 1991 to 17.5 % in 2011. It is expected that by 2060 the share of those 65 years and over will account for 29.5 % of the EU-27 population (Eurostat, 2013). The ageing of the population results from decreasing fertility rates, but also from increasing life-expectancy rates and the progressive ageing of the ageing population itself. These latter trends are partially attributable to improved quality of nutrition, and advances in medicine, especially knowledge about diseases and their control, and to developments such as early detection of colorectal and breast cancer in screening programmes which increase the chances of survival. Improvements in housing, nutrition, and sanitation standards have also contributed to improved life expectancy (Staehelin, 2005).

In developed countries, years added to life are generally lived in good health. However, because more people live into old age and because chronic diseases more frequently occur in the older population, the burden of disease will also increase. The ageing of the population will have an impact on healthcare, housing and community facilities, consumption patterns, and also on social security costs. In response, health professionals, researchers, and policymakers are increasingly concerned with healthy ageing, where ageing-in-place is used as a key concept. In this chapter, we first discuss the meaning of the concept of healthy ageing, and how Sense of Coherence contributes to this process. Next, we discuss the characteristics of the community in which older people live their lives and how the community can contribute to healthy ageing in place.

Ageing and Healthy Ageing

The simple question "when is someone old?" is not easily answered. Up to now, the question is mainly answered from an exogenous, administrative, and political perspective (Koelen, 2011). In many countries, "becoming old" is defined by retirement (in countries where retirement exists) or chronological age (Cattan, 2009). Retirement age can however vary, from 55 to 75 years of age, depending on country and/or profession. Occasionally, people aged 45 or 50 years are included under the label "older" for policy or research purposes. Defining "old age" simply as chronological age can be rather misleading, particularly if we accept the social construct of old age. It is not possible, in this chapter, to explore the extensive debates, theories, and research paradigms linked to ageing and old age, but suffice to say that the concept will continue to be redefined and refined as our perceptions and understanding of old age evolve. This is also true for the concept of healthy ageing. There are many definitions for "healthy ageing," and the concept is often used alongside related concepts such as "effective ageing", "positive ageing", and "successful ageing". The World Health Organization uses the concept of "active ageing", which is defined as "the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age" (WHO, 2002; p. 12). The way healthy ageing is defined seems to depend on the context in which it is used. Hanson-Kyle (2005, p. 52) summarized different definitions and based on commonalities defines healthy ageing as "the process of

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slowing down, physically and cognitively, while resiliently adapting and compensating in order to optimally function and participate in all areas of one's life (physical, cognitive, social and spiritual)". The meaning attached to healthy ageing also depends on whether it is defined by professionals or by older people. Research reveals that older people have a different view from that of professionals, research scientists, and policymakers. Professionals frequently focus on negatively phrased topics such as disability, disease, loneliness, overweight, and falls, thereby emphasizing the problems and limitations that occur due to ageing, whereas older people focus more on supportive social environments, the ability to use resources, the ability to manage restrictions (Naaldenberg, Vaandrager, Koelen, & Leeuwis, 2011) and on adaptation, meaningfulness, and connectedness (Jeste, Depp, & Vahia, 2010). This perception relates to the increasingly accepted definition of health as "the ability to adapt and self-manage" (Huber et al., 2011).

Life Course Perspective

Healthy ageing is a lifelong process, and it evolves through the lifespan from (pre-) conception, infancy, adolescence, and young adulthood into old age. Lifespan is usually understood as the duration of a person's life history from conception to the end life. Genetic endowment, exposures to health enhancing or deteriorating occurrences in the physical and social environment at any moment in time influence health development across the lifespan (cf. Kuh & Ben Shlomo, 2004; Westendorp & Kirkwood, 2007).

Older people are often seen as passive and frail, even though in reality a substantial number are quite resilient and active in managing the challenges they face as part of the ageing process. It should be recognized that older people do not constitute a heterogeneous group. Indeed, individual diversity if anything increases with age across the life course (Marcoen, Coleman, & O'Hanlon, 2007). Or, as Aldwin, Spiro, and Park (2006) put it "some individuals become severely disabled in midlife, whereas others are running marathons in their 70s and even 80s" (p. 85).

From a life course perspective, old age (65+) may be considered as the "last season", or the third age, but reaching the age of 65 is not the last transition. Increasingly, we also talk about "the fourth age" or "the oldest old" meaning people aged 85 and over. Life course in this context is taken to mean the social aspect of the lifespan which involves biological, social, and psychological processes leading to planned or unplanned life transitions and/or events. Importantly, a life course approach recognizes that ageing experiences are influenced by factors relating to cohort effects (Hubley & Copeman, 2008; Phillipson &

Baars, 2007). Some issues related to this are unique for later life; others are of greater relevance in later life.

With increasing age, many changes occur in the social environment, as a result of retirement (loss of role), death of a spouse, death of family members and friends, and the onset of age-related sensory loss and mobility problems. It has sometimes been said that old age is an accumulation of losses forcing older people to adapt and adjust to constantly changing physical and social environments. For most part, older people demonstrate great ability to find a range of different strategies to deal with these changes. Over time, however, the available options become fewer as a result of declining resources and ability. This can have an impact on the older person's mental health and increase the risk of social isolation and loneliness (Dykstra, 2009). Research has shown that the availability of social contacts and the ability to engage in social interaction are important in maintaining healthy ageing and alleviating loneliness (Forte, 2009; Nyqvist, Cattan, Andersson, Forsman, & Gustafson, 2013). In adapting to changing circumstances, older people may use a range of "tools" available to them to facilitate engagement. Results from a systematic review and meta-analysis suggest a significant relationship between the Internet use (through, for example, social media, email, Skype) and mental well-being in older people (Forsman & Nordmyr, 2015). Research on the facilitation of social participation and the stimulation of social interaction is ongoing, but there are still gaps in our knowledge and understanding of the processes involved. However, research in associated areas has shown that there is an accumulation of socio-economic disadvantage with regard to disability over the life course, leading to morbidity and mortality inequalities in later life (Kingston et al., 2015) and also that high levels of physical capability is associated with mental well-being in older people (Cooper et al., 2014). Such findings suggest that investigations of the role of social interaction in maintaining health over the life course may need to consider the wider constructs of health in old age, including socio-economic factors and physical capability.

Sense of Coherence and Its Three Dimensions

Sense of Coherence (SOC) reflects a person's view of life and capacity to respond to stressful situations. It is a global orientation to view the life as structured, manageable, and meaningful or coherent. It is a personal way of thinking, being, and acting, with an inner trust, which leads people to identify, benefit, use, and reuse the resources at their disposal (Antonovsky, 1987; Lindström & Eriksson, 2005). SOC consists of three elements: comprehensibility, manageability, and meaningfulness. The original definition is as follows: "a global orientation that expresses the extent to

which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement." (Antonovsky, 1987, p. 19).

Comprehensibility refers to the extent to which a person perceives the stimuli confronted with, deriving from the internal and external environments, as making sense as information that is ordered, consistent, structured, and clear. The person scoring high on the sense of comprehensibility expects that stimuli they encounter in the future will be predictable, ordered, and explicit. This is the cognitive component of the SOC. Manageability is the extent to which a person perceives that resources are at their disposal that are adequate to meet the demands posed by the stimuli that bombards them. "At a person's disposal" refers to resources under the person's own control or to resources controlled by legitimate others. This is the instrumental/behavioural component of the SOC. Meaningfulness refers to the extent to which a person feels that life makes sense emotionally, that problems and demands are worth investing energy in, are worthy of commitment and engagement, seen as challenges rather than burdens. This is the motivational component of the SOC. The original name of the instrument to measure sense of coherence is "the life orientation questionnaire". The SOC can be measured by using 29 items or a shortened form of 13 items. For more details of the SOC questionnaire, see Chaps. 11 and 12 in this book.

How the SOC Develops in the Life Course

A person's SOC affects and is affected at each stage across the lifespan by the surrounding environment and people in the local environment. In the mid-1980s, Antonovsky wrote an article about the importance of the sense of coherence for mental health and related this to a life course perspective (Antonovsky, 1985). In a lecture he gave in Berkeley, he discussed the transition from adolescence to adulthood and ageing, and argued for the usefulness of the salutogenic perspective (Antonovsky, 1993). He positioned ageing persons in a context of a health continuum, the ease/disease continuum, and argued that people are all constantly moving in this continuum. People, dependent on age, are in different positions in this continuum. In Antonovsky's words: "I propose that all living human beings, at any point in time, are somewhere on a continuum between the two extreme poles. An elderly person with a thick medical folder is no less on the continuum than an active, hungry, screaming, and smiling infant or than a strapping adolescent.

They are at different points on the continuum; the dynamic prognoses are different."

Antonovsky considered ageing as a process of human development instead of just a biological and mental degradation of the body: "Is it not possible that the ten billion neurons in the human cortex can come up with some replacement for what has senesced? Whatever the case may be for the biological development of salutary factors till the very end of life …, I can surely see the possibility of the growth of social-psychological salutary factors as one gets older" (Antonovsky, 1993). These thoughts can be related to Erikson's theory of human identity development and the need for full awareness of context, especially as one gets older (Erikson & Erikson, 1998).

According to Antonovsky (1987), the SOC is assumed to develop until the age of 30, to remain stable until retirement, and thereafter to decrease. However, this assumption has not been empirically supported in previous research. The SOC seems to be relatively stable over time, but not as stable as initially assumed (Eriksson & Lindström, 2011). Research findings show that the SOC develops over the entire lifespan, in other words it increases with age (Feldt et al., 2007, 2011; Nilsson, Leppert, Simonsson, & Starrin, 2010). In the HeSSup study among 18.525 Finns, the SOC seemed to increase with age in terms of being more stable among subjects aged 30 and over (stability coefficient 0.81) than among younger adults (0.70) (Feldt et al., 2007). More recent longitudinal research ($n = 19.629$, response rate 80.2 %) sheds light over how the development of the SOC from different age groups can be understood. Feldt et al. (2011) found that the strongest development (46–58 %) was among those participants whose SOC was strong at baseline. A class of strong SOC with a decreasing trend and that of low SOC with an increasing trend was also found. Nilsson et al. (2010) were able to demonstrate on a sample of Swedes, aged 18–85 years ($n = 43.598$), that SOC increases with age in both men and women.

SOC and Healthy Ageing

Research among older people shows, as during other periods of the life cycle, that a strong sense of coherence is related to good perceived health and quality of life (Bryant, Corbett, & Kutner, 2001; Eriksson & Lindström, 2005, 2006; Holmgren & Söderhamn, 2005; Schneider, Driesch, Kruse, Nehen, & Heuft, 2006; Stenbock-Hult & Sarvimäki, 1994). Results from a longitudinal study among 74 Germans over 60 years showed that a strong SOC was related to good health and had a positive impact on perceived age-related changes (Schneider et al., 2006). The sense of context explained 63 % of variance in well-being in this study. Wiesmann and Hannich (2008) and Wiesmann, Dezutter,

and Hannich (2014) investigated the role that SOC and generalized resistance resources have for older people's experience of life satisfaction among 387 Germans with a mean age of 73.8 years. The results showed that the SOC-as the ability to cope in everyday life-, social support and self-esteem were factors that contributed to older people's satisfaction with life (Table 15.1).

Salutogenic qualitative research shows that healthy ageing means to have something meaningful to do, and that there is a balance between capacity and challenges of growing old. Fundamental to feeling good was to have a positive outlook on life (Bryant et al., 2001). Meaningfulness is especially important for older people. Takkinen and Ruoppila (2001) investigated Finnish 65–92 year olds in the so-called Evergreen project. They found that the factors that give life purpose are to maintain social relationships, to be socially active, to have a hobby, to have the ability to be physically active, to be happy with life, and to have good health. Low levels of both depressive symptoms and feelings of loneliness contributed to perceived good health. Rennemark (1999) examined the relationship between health/wellness and SOC through the life stories of 71-year-old Swedes. The results confirmed previous research that people with a strong SOC reported fewer symptoms of illness, such as perceived depression. A positive valuation of childhood and adolescence co-varied with a strong SOC later in life. Also Khoon-Kiat, Vehvilainen-Julkunen, and Wai-Chi Chan (2013, p. 497) concluded, based on a review study, that a strong SOC among older people was correlated with better physical, social, and mental health.

Gender differences are reported in terms of SOC and perceived health among older people. In a Norwegian study among 242 older people (mean age 84.6 years), examining how the SOC affected the perception of health (Saevareid, Thygesen, Nygaard, & Lindstrom, 2007), it was found that both men and women had health problems directly related to perceived health, while psychological symptoms were directly related to perceived health only in men. The gender difference reduced the effect of SOC on perceived health.

As pointed out earlier, ageing is a process, and concepts such as successful ageing and healthy ageing are frequently used (Lezwijn et al., 2011). Salutogenic research also uses the term "resilient ageing" (Hicks & Conner, 2014). As a basis for an EU conference "Salutogenesis and the promotion of positive mental health in older people" (19–20 April 2010, Madrid, Spain), Billings and Hashem (2010) conducted a review of studies among older people using a salutogenic approach to ageing. The review included concepts and theories closely related to SOC, such as resilience, hardiness, and religiosity (religious beliefs). The authors highlighted different models for healthy ageing, including factors such as self-reliance, sense of control over life, and a positive attitude to life, all to be important determinants of good ageing. They also noted that although the salutogenic approach provides a valuable contribution to maintain and develop health among older people, research and application in practice had not achieved the expected attention and impact.

GRR and SRR for Older People

Two important concepts in salutogenic theory are *Generalized Resistance Resources* (GRR) and *Specific Resistance Resources* (SRR). *Generalized resistance resources* (GRRs) are those resources that help a person to avoid or to combat a wide variety of stressors (Antonovsky, 1979). GRRs arise from the cultural, social, and environmental living conditions and early childhood upbringing and socialization experiences (see Chap. 7). GRRs can be found within people as resources bound to their person and capacity, but also within their immediate and distant environment and can be both material and non-material (Lindström & Eriksson, 2005). Examples of GRRs are genetic and constitutional qualities, knowledge, intelligence, ego-strength, control, social support, commitment, cultural stability, but also material resources such as money. Importantly, it is not just that such resources are available, but that the individual has the capacity to recognize, use, and reuse the resources for the intended purpose, which helps to increase health and well-being. GRRs are applicable in a wide variety of situations. Specific Resistance Resources (SRRs) on the other hand are particular resources, useful in specific situations. Or, as Mittelmark et al. put it in Chap. 8, a GRR is a generality, an SRR is a particularity. In their words, "... SRR ... are optimized by societal action in which public health has a contributing role, e.g. the provision of ... health and social and protective (welfare) services, and supportive social and physical environments".

The Community

Many of the "prerequisites" to strengthen GGRs, SRRs, and SOC are provided by or mediated through the community. But what constitutes a community? Even though the concept is used often in health promotion literature, there is no general understanding of the concept. However, two broad lines can be distinguished, that is, definitions in terms of geographical area and definitions in terms of shared characteristics (Koelen & van den Ban, 2004, p. 136). For the sake of simplicity, here we mean groups of people living in a certain geographical area, often sharing a common culture, values and norms, and who are placed in a social

Table 15.1 A selection of studies using SOC among older people

Country	Sample	Variables	Study design and measures	Results and conclusions	First author
Poland	Older adults (mean age 71.04)	Religiousness, SOC, coping	Cross-sectional Religious Meaning System Questionnaire, SOC-29, Coping Inventory for Stressful Situations	Findings showed that the religious meaning system had significant relationships with SOC and three coping styles: emotion-oriented coping, avoidance-oriented coping, and social diversion. In addition, SOC mediated the relations between the religious meaning system and three coping styles: the emotion-oriented, avoidance-oriented, and social diversion. The positive associations between meaning-oriented religiousness, SOC, and coping styles imply that their underlying mechanisms are based on the structures of significance and comprehension. The character of mediational relations (i.e., mediator vs. suppressor) depended on the emotional and social coping strategies used by older adults	Krok, D. (2015). Sense of coherence mediates the relationship between the religious meaning system and coping styles in Polish older adults. Aging & Mental Health, June 19, 1–8
Norway	Cognitively intact Nursing Home residents	SOC	Cross-sectional SOC-13	In accordance with the salutogenic theory of sense of coherence, the three-factor model revealed the best fit to our data. In particular, item OLQ2, defined as "concerns the experience of being surprised by the behaviour of people whom you know well", seemed troublesome. Removing this item resulted in good fit to the present data. Rewording or deleting item OLQ2 seems needed to get a reliable instrument measuring sense of coherence among nursing home residents	Drageset, J. & Haugan, G. (2015). Psychometric properties of the Orientation to Life Questionnaire in nursing home residents. Scandinavian Journal of Caring Sciences, doi: 10. 1111/scs.12271
Norway	Nursing home residents	SOC, social support	Longitudinal SOC-13, Social Provisions Scale	SOC increased statistically significantly from baseline to follow-up. The social support subdimension reassurance of worth predicted change in SOC after adjustment for socio-demographic factors. When controlled for baseline SOC, attachment was associated with change in SOC, but reassurance of worth was not. The study indicates that the change in SOC over time during the 5 years of follow-up and the social support dimension attachment appear to be important components of change in SOC	Drageset, J. et al. (2014). Sense of coherence among cognitively intact nursing home residents—a five-year longitudinal study. Aging & Mental Health, 18(7), 889–896

Table 15.1 (continued)

Country	Sample	Variables	Study design and measures	Results and conclusions	First author
Spain	Older adults (mean age 74.8)	SOC, posttraumatic stress disorder symptoms, daily life functioning, religious beliefs and practices and social support	Cross-sectional SOC-13, Severity of Posttraumatic Stress Disorder Symptom Scale, Daily Life Functioning Scale, Systems of beliefs inventory, Posttraumatic Growth Inventory	Older people may experience psychological growth following a life major event. The objective of this study was to analyse the degree of posttraumatic growth (PTG) developed by widowed and non-widowed older adults ($n = 103$) as well as the impact of possible predicting variables such as socio-demographic characteristics, experienced or witnessed life major events, religiosity, and sense of coherence. The findings suggest that, in spite of widowhood, elder people develop PTG in the same way that non-widowed elder people. Therefore, the support of a religious community, age, life major events experienced and the subjective meaning given to them correlated with PTG	Lópes, J. et al. (2014). Posttraumatic growth in widowed and non-widowed older adults: Religiosity and sense of coherence. Journal of Religion and Health, 53(6), doi: 10.1007/s10943-014-9876-5
Japan	Volunteers >65 years old (mean age 69.1)	SOC, depressive mood	Longitudinal SOC-13, Geriatric Depression Scale-Short Version-Japanese (GDS-S-J)	Analyses of the simple main effects showed that sense of meaningfulness significantly increased for members of the intervention group at all terms, with no changes in the control group over time. Multiple mediation analysis revealed that participation in the intergenerational program was associated with a sense of manageability which was also significantly related to depressive mood. However, given our limited sample size, generalizability was restricted and studies with larger cohorts are required to further validate our findings	Murayama, Y., et al. (2014). The effect of intergenerational programs on the mental health of elderly adults. Aging & Mental Health, 10.1080/13607863. 136072014.136933309
Norway	Elderly caregivers (mean age 79)	SOC, cognitive decline (persons with dementia), caregiver burden, social support	Cross-sectional SOC-13, Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE), Relative Stress Scale (RSS), Social Provision Scale (SPS)	With adjustments for socio-demographic variables, the association with burden of care was statistically significant for the subdimension attachment ($p < 0.01$) and for sense of coherence ($p < 0.001$). The burden of care was associated with attachment and with sense of coherence. Community nurses and other health professionals should take necessary action to strengthen attachment and sense of coherence among the caregivers of people with dementia	Stensletten, K. et al. (2014). Burden of care, social support, and sense of coherence in elderly caregivers living with individuals with symptoms of dementia. Dementia. December 18, DOI: 10.1177/1471301214563319

Country	Population	Variables	Study design / Instruments	Findings	Reference
Germany	Older persons (mean age 73.8)	SOC, self-esteem, generalized self-efficacy, optimism, social support, morbidity, bodily pain	Cross-sectional. Bodily Pain subscale of the SF-36 Health Survey, SOC-29, Rosenberg Self-Esteem Scale, Life Orientation Test, Generalized Self-Efficacy Scale, Expected Social Support Scale	We found that morbidity and sense of coherence were the only significant predictors of pain, with morbidity showing the strongest effect. Using path analysis, the sense of coherence was a mediator of the relationship between resistance resources/deficits and pain. With respect to our analytical model, in which pain experience was the criterion variable, morbidity and the sense of coherence are important predictors of pain. Moreover, we found evidence for the salutogenic idea that the sense of coherence represents a mediator variable as it pools resistance/deficits influences on pain	Wiesmann, U. et al. (2014). Sense of coherence and pain experience in older age. International Psychogeriatrics, 26 (1), 123–133
Belgium	Flemish elderly (mean age 76.5)	Depressive symptoms, life satisfaction, SOC, ego-integrity, despair	Cross-sectional. Centre for Epidemiological Studies Depression Scale (CES-D), The Satisfaction with Life Scale (SWLS), SOC-13, Ego-integrity and despair (Van Hiel & Vaansteenkiste)	A positive relationship between SOC and well-being was found. Elderly individuals with a strong SOC experienced less depressive symptoms and higher levels of satisfaction with their life. In addition, mediation analysis indicated that the relationship between SOC and depressive symptoms was partially mediated by the positive resolution of the integrity-despair crisis, whereas the relationship between SOC and life satisfaction was fully mediated by integrity and despair. Our findings indicate that SOC might be a resource for greater well-being in the elderly. Furthermore, our study offers a partial explanation for the relations found and points to the importance of finding integrity and resolving despair in this stage of life	Dezutter, J. et al. (2013). Sense of coherence, depressive feelings and life satisfaction in older persons: a closer look at the role of integrity and despair. Aging & Mental Health, 17(7), 839–843
Norway	Older nursing home residents (mean age 65–102)	Depressive symptoms, SOC, emotional and social loneliness	Cross-sectional. Social Provisions Scale (SPS), Geriatric Depression Scale (GDS), SOC-13	Before adjustment, Geriatric Depression Scale was associated with attachment and social integration. After adjustment, GDS was still associated with attachment and social integration. Further adjusting for SOC reduced the association between GDS and attachment and even more so for the association between GDS and social integration. SOC and GDS did not interact, and SOC-13 was associated with attachment and social integration.	Drageset, J., et al. (2012). The impact of depression and sense of coherence on emotional and social loneliness among nursing home residents without cognitive impairment—a questionnaire survey. Journal of Clinical Nursing, 21 (7–8), 965–974

Table 15.1 (continued)

Country	Sample	Variables	Study design and measures	Results and conclusions	First author
				Depression symptoms contribute to emotional and social loneliness. Independent of SOC, depression symptoms are associated with emotional loneliness, SOC influence emotional and social loneliness	
Sweden	Older Swedes (mean age 91.2)	Sense of Coherence Negative life events	Longitudinal SOC-13, Barthel's index of activities in daily living (ADL), the mini-mental state examination (MMSE), Geriatric Depression Scale (GDS), The Philadelphia Geriatric Center Morale Scale (PGCMS), medical diagnosis, index of negative life events	For the whole group of subjects ($n = 56$), the SOC scores was higher (70.1 vs. 73.7, $p = 0.029$) at the second point measure. The most common negative life events at follow-up were loss of independence in activities in daily living and decrease in cognitive function. A significant correlation between the index of negative life events and changes in SOC over 5 years was found ($p = 0.025$). The more negative life events, the more decrease in SOC. We concluded that there is a risk of decreased SOC and thereby quality of life when negative life events accumulate among very old people. Nursing interventions might play an important role for maintaining and perhaps strengthening SOC among old people exposed to negative life events	Lövheim, H., et al. (2012). Changes in sense of coherence in old age—a 5-year follow-up of the Umeå 85+ study. *Scandinavian Journal of Caring Science*, 27(1), 13–19
Sweden	75-year-old Swedes	General health, health behaviour, health problems, socio-demographic status, SOC	Cross-sectional SOC-3, VIPS-Well-being, Integrity, Prevention and Safety, The Health Index questionnaire	Most 75-year-old persons reported their health as good or very good, but they also reported health problems such as: pain, sleeping problems, memory failure, fatigue, poor understanding of their own health and illnesses, problems with elimination patterns and underweight and overweight. 75-year-old persons living alone, those with elementary school education and women reported worse health and well-being than other groups. This study contributes to the knowledge about health issues that concern persons of 75 years of age. It gives a suggestion as to what the district nurses should be aware of when performing preventive home visits	Sherman, H., et al. (2012). The 75-year-old persons' self-reported health conditions: a knowledge base in the field of preventive home visits. *Journal of Clinical Nursing*, 21(21–22), 3170–3182

Sweden	Swedes aged 85–103 years	SOC, psychological well-being, depressive symptoms, ADL, cognitive function	Longitudinal SOC-13, Philadelphia Geriatric Center Morale Scale (PGCMS), Geriatric Depression Scale-15 (GDS-15), Organic Brain Syndrome Scale (OBS-scale), Montgomery Åsbergs Depression Rating Scale (MADRS), Barthel Indel, Mini-Mental State Examination (MMSE)	The mean SOC score was 71.8 ± 10.2 ($\pm$S.D.). SOC was positively related to well-being ($p \leq 0.001$). Heart failure ($p = 0.009$), chronic obstructive pulmonary disease ($p = 0.015$), depression ($p = 0.015$), and osteoarthritis ($p = 0.032$) were significantly associated with low SOC scores, as were high scores on the Geriatric Depression Scale (GDS) ($p = 0.002$). One-year mortality was significantly associated with the SOC score (OR = 0.945, confidence interval (CI) = 0.898–0.995, $p = 0.032$), while the 4-year mortality was not (OR = 0.995, CI = 0.973–1.018, $p = 0.674$). The SOC score did not predict depression at 5-year follow-up (OR = 0.977, CI = 0.937–1.018, $p = 0.267$). Strong SOC was associated with well-being in this group of old people. Low SOC was found among those with diseases known to have a negative influence on daily life	Lundman, B. et al. (2010). Sense of coherence (SOC) related to health and mortality among the very old: The Umeå 85+ study
Norway	Norwegians aged $\geq$75 years	SOC, psychological distress, health and functional status, subjective health status, cognitive status, personal resources, perceived social support	Cross-sectional study SOC-13, General Health Questionnaire (GHQ), Barthel ADL Index, Self-rated health, Subjective health complaints, The Clinical Dementia Rating Scale	Of the 214 participants, 23 (10.7 %) reported experiencing psychological distress using a cutoff point of 4 or more on a GHQ case score. Sense of coherence, education and subjective health complaints were the only factors that were significantly related to psychological distress in the multivariate analysis. The general level of psychological distress was low. Low psychological distress was related to an inner strength conceptualized as sense of coherence. Commonly reported risk factors such as sex, household composition and perceived social support, and objective measures of somatic and mental health and bodily dysfunctions were not related to psychological distress	Thygesen, E. et al. (2009). Psychological distress and its correlates in older care-dependent persons living at home. *Aging & Mental Health*, 13(3), 319–327

structure according to relationships which the community has developed over a period of time (based on Nutbeam, 1998).

At the centre of the community is the house, which is considered to be the primary setting for ageing in place (Felix, de Haan, Vaandrager, & Koelen, 2015; Orrell et al., 2013; Oswald & Wahl, 2005; Sixsmith & Sixsmith, 1991). Older people spend on average 80 % of their time inside the house (Oswald, Wahl, Naumann, Mollenkopf, & Hieber, 2006; Windle, Burholt, & Edwards, 2006). Studies by for example, Felix et al. (2015), Oswald et al. (2006), Percival (2002), Rowles (1983), Sixsmith (1986), and Smith (1994) show a variety of conditions that turn a house into a meaningful place in which to live. The physical structure of the house functions as a stage for daily activities. Basic qualities of the house, like daylight, the level of thermal and sound insulation, and the ease of maintenance are valued for their physical comfort, as well as for providing feelings of privacy, safety, freedom, and independence. A meaningful house enhances feelings of personal control, autonomy, and responsibility, which seem to be pivotal to health development (Koelen & Lindström, 2005) and hence to healthy ageing. People who have a responsibility for day-to-day events, even seemingly small things such as watering plants, or caring for a little bird or dog, have more favourable psychological well-being and show higher health and activity patterns than people without such responsibilities (e.g., Rodin & Langer, 1977). In addition, the house provides a place for personal belongings, which are used to set priorities in life, to create a personal atmosphere, and to keep memories of the past alive. As Rowles and Bernard (2013) argue, one's own home provides security, it holds memories, and it provides the possibility to stay in proximity with friends, neighbours, kin, and local services. As such, one's own home contributes to each of the SOC components: meaningfulness, comprehensibility, and manageability.

The social dimension of the house is shaped through interaction with the surrounding community environment, which first of all includes the near social environment (family, friends, neighbours). Social contacts are seen as an enrichment of life for all age groups: it is fun to do things together. It seems that, especially when people become older, social contacts become more and more important (Oswald & Wahl, 2005; Puts et al., 2007).

A key finding in a qualitative study by Felix et al. (2015), which focused on the experience of the house as a home, was that all participants mentioned the importance of the neighbourhood for feeling at home. Having contact with neighbours, the provision of help and care, and the availability of facilities locally seem to be essential for people's sense of "home". Indeed, many aspects of the community environment are important for older people. This includes the social environment, which provides a feeling of belonging and social inclusion; features of the built environment, including services such as shops, restaurants, schools, churches and community centres, formal and informal health services, and infrastructure and transportation; and features of the natural environment, such as availability of urban green space and recreation areas (Felix et al., 2015; Stephens, Breheny, & Mansvelt, 2015). Clearly, these environments interact. Spatial design of housing, proximity of shops, church and other services, and infrastructure largely influence the mobility, self-reliance and social participation in the neighbourhood and larger community. A lack of facilities in each of these domains may negatively affect quality of life. Hence, the neighbourhood can provide important GRRs for older people. In their review study, Khoon-Kiat et al. (2013, p. 497) concluded that older people who have access to GRRs are more likely to have a strong SOC, relatively good health and quality of life.

Healthy Ageing in the Community

Important for healthy ageing is that people have the possibility to age in place. Ageing in place can be defined as "the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income or ability level" (Centers for Disease Control & Prevention, 2009, p. 1). This implies that older people receive adequate support while they continue to live and be involved in the community. Over the past decade, the concept of "age-friendly communities" has emerged. According to the WHO, "in an age-friendly community, policies, services and structures related to the physical and social environment are designed to support and enable older people to 'age actively', that is, to live in security, enjoy good health and continue to participate fully in society. Public and commercial settings and services are made accessible to accommodate varying levels of ability" (WHO, 2002). Menec, Means, Jeating, Parkhurst, and Eales (2011) provided an interesting conceptualization of age-friendly communities (See Fig. 15.1).

According to the authors, age-friendly communities create connections between the older persons and the environment in which they live and vice versa (p. 484). This very much relates to the SOC dimension of meaningfulness. Having a purpose in life is closely related to the maintenance of social relationships and having the possibility to be physically and socially active (Takkinen & Ruoppila, 2001). It enables older people to recognize and use GRRs to strengthen one or more of the three dimensions of SOC—meaningfulness, manageability, and comprehensibility—which in turn enables them to recognize, pick up, and use SRRs as needed in specific encounters with stressors (see Chap. 8).

Fig. 15.1 Conceptualizing age-friendly communities (Menec et al., 2011, p. 484)

Hence, the home and neighbourhood provide a basis for consistency (coherence) and GRRs, enhancing meaningfulness, comprehensibility, and manageability. Age-friendly communities provide supportive environments for people while ageing. They provide resources for health in the social and physical environment which—combined with their personal resources—enable people to live their lives despite possible limitations. With limited research on the role and processes of salutogenesis in later life, the model of age-friendly communities may provide a useful framework for future research and practice, towards the facilitation of independence, participation, and well-being of older people.

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The Application of Salutogenesis in Everyday Settings

Georg F. Bauer

Introduction

Settings are defined as "the place or social context in which people engage in daily activities in which environmental, organizational, and personal factors interact to affect health and wellbeing" (WHO, 1998). Such settings as place or social space range, e.g., from small-scale home/family to (international) organizations and large cities and thus differ in size, in their degree of formalized organization, and their relationships to society.

The WHO Ottawa Charta for health promotion (1986) states that "health is created and lived by people within the settings of their *everyday life*; where they learn, work, play and love" (emphasis added). Thus, this section focuses on these everyday settings in contrast to the section on healthcare settings that are explicitly in charge with dealing with health or rather disease issues. Being aware of the challenge to introduce the health perspective into everyday settings, WHO (http://www.who.int/healthy_settings/types/en/) and other players have established numerous local, national, and international networks to support and link such efforts, e.g., through the networks of health-promoting schools, universities, cities, and workplaces. Obviously, in context of globalization, the relevance of "non-traditional, non-institutional settings" (Dooris, 2013), e.g., related to social media and virtual communities (Loss, Lindacher, & Curbach, 2014) need to be also addressed in the future.

The WHO Ottawa Charta (1986) 30 years ago clearly defined that health is a "...resource for everyday life .... A positive concept emphasizing social and personal resources, as well as physical capacities.... To reach a state of complete physical, mental and social well-being." Surprisingly, now the WHO claims that healthy settings focus on risk factors and disease prevention: "Healthy Settings, the settings-based approaches to health promotion, involve a holistic and multi-disciplinary method which integrates action across *risk factors*. The goal is to maximize *disease* prevention via a 'whole system' approach" (emphasis added) (WHO, 2015). However, as well demonstrated in the chapters enclosed in this section, in practice most scholarship and programmatic approaches regarding health promotion in everyday settings emphasize strengthening resources and promoting health over preventing disease outcomes.

Regarding agency, settings can be perceived as an efficient access for outside agents to large, well-defined target groups for health promotion—typically referred to as "health promotion in settings." Alternatively, external health promotion specialists can build up capacities of inside agents within settings to address behavioral and environmental health issues themselves—typically referred to as "health-promoting setting."

Overall, the overarching, generic settings literature more or less agrees upon several principles of the settings approach (Dooris, 2005, 2009; Paton, Soumen, & Lamiece, 2005; Poland, Kurpa, & McCall, 2009; Shareck, Frohlich, & Poland, 2013):

- Ecological model of health
- Taking a whole systems approach considering reciprocal relationships within the system and between its subsystems, as well as relationships with systems in the environment
- Organizational development for change
- Promoting participation as key process of interventions

Surprisingly, this generic literature makes no (Paton et al., 2005; Whitelaw et al., 2001) or only very brief, general references to salutogenesis as a source of inspiration or orientation for the settings approach (e.g., Dooris, 2005, 2009, 2013; Poland et al., 2009).

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Application of Salutogenesis in the Chapters in this Part

Salutogenesis has been applied to guide health promotion research and practice in various settings. The enclosed chapters review this literature separately for the settings of community/neighborhood, city, restorative environments, school, university, work, workers in prisons, and organizations contained in this section. All these chapters follow a common structure: they describe the context of the particular setting, summarize the descriptive and intervention-related research under consideration of the link to salutogenesis, and finally draw conclusions for future research and practice.

The reader will observe that the degree of application of salutogenesis in these settings highly varies. Much of the setting-related literature is strongly rooted in the general health promotion principles: interventions should be empowering, participatory, holistic, inter-sectorial, equitable, sustainable, and multi-strategy (Rootman, 2001). The literature offers diverse health-related research and sound programmatic approaches—but in most cases only loosely refers to salutogenesis. Some fields such as restorative environments or occupational health developed strong conceptual and empirical knowledge outside the salutogenic model—but can be interpreted within this model. There is only limited research on the setting-specific role of sense of coherence, and even less on other elements of the salutogenic model (e.g., generalized resistance resources, salutary factors, ease-/disease continuum) and of their relationships and dynamics within settings. However, research on designing interventions to actively promote salutogenesis is growing, e.g., in the settings of neighborhoods, schools, worksites, or prisons.

The following subsections identify key relationships between salutogenesis and settings emerging across the chapters on diverse everyday settings. They are based on my subjective reading as the section editor and are offered as an invitation to draw own conclusion on future developments of salutogenesis in context of settings.

Overall Conceptual Relationships Between Everyday Settings and Salutogenesis

Most of the chapters agree that the settings approach conceptually is in line with salutogenesis—as both imply not to target individuals and single risk factors or disease outcomes, but groups and upstream, environmental determinants of health. Some chapters point out that the resource or asset orientation of the settings approach resonates well with Antonovsky's concern for sense of coherence and generalized resistance resources. As most everyday settings function on the meso-level between the individual and the larger socioeconomic environment, it is reasonable to assume that the generalized resistance resources experienced in interaction with these key life domains are a particularly strong source of sense of coherence. Most settings are characterized by strong social relationships between its members. This suggests to not only study the sense of coherence of individuals in isolation, but the degree of shared perception of a sense of coherence on a group level as proposed by Antonovsky (1987, p. 171).

For the future, the settings approach could offer meaningful categories for classifying generalized resistance resources. First, generalized resistance resources can be grouped by setting, e.g., family, neighborhood, and work. Second, within a setting, subdimensions of these generalized resistance resources can be identified based on key characteristics of the setting. For example, the chapter of work discriminates factual, task-related resources from relational, social resources. The chapter on communities and neighborhoods distinguishes between settings as a place (natural and built environment), identity (sense of community), social entity (cohesion, social capital), and as collective action (reactive-resilience; proactive-community action). Such clearly defined, setting-related categories of generalized resistance resources would allow to study their relative importance for the development of the overall sense of coherence and particularly of the setting-specific sense of coherence. The latter concept refers to the idea that each setting will vary in regard to how comprehensible, manageable, and meaningful it is perceived by its members and customers. Although the setting-specific sense of coherence will partly depend on the overall sense of coherence of a person as a personal resource, it will also depend on setting-specific characteristics and vary for one person across settings. Consequently, earlier we proposed developing setting-specific measures of sense of coherence as indicators of the salutogenic, interactional quality of a specific setting (Bauer & Jenny, 2007). For now, this idea has been applied to the work-related sense of coherence (Bauer, Vogt, Inauen, & Jenny, 2015; Vogt, Jenny, & Bauer, 2013) and before to the University SOC (Graeser, 2011).

Interrelationships Between Settings from a Salutogenic Perspective

The idea of setting-specific generalized resistance resources and sense of coherence raises the interesting research question of how they influence each other across settings and how they differentially contribute to development of generic sense of coherence and health. Whereas most of the enclosed

chapters treat the various everyday settings separately from each other, some reflect on such relationships between life domains.

Maass et al. show that sense of coherence is influenced by different life domains (Maass, Lindstrøm, & Lillefjell, 2014): the satisfaction with the quality of neighborhood resources was significantly related to sense of coherence in non-workers and low-earners—but not for other employed citizens. The authors conclude that deprived groups might benefit most from health promotion in neighborhoods—as they depend more on neighborhood quality. Research on restorative environments looks at the everyday variation of mostly ecological resources due to diverse person–environment interactions during the day—considering both short-term effects on functioning and long-term, accumulative health effects of these cross-domain dynamics. It shows, for example, that the recovery experience at home can be constrained by demands by work brought home. Most systematically, the cross-environment experience has been studied for the work/non-work relationship. This research has moved from an originally heavily pathogenic focus on work–life conflicts to the more positive processes of work–life enhancement and work–life balance (Greenhaus & Allen, 2010). From a salutogenic perspective, the experience of balance could be understood as a result of successful balancing stressors and generalized resistance resources experienced across the involved life domains.

Work/non-work-related research is of particular interest as it builds on several overarching theories potentially relevant for salutogenic research within and across settings: for example, conservation of resource theory (Hobfoll, 1989, 2001), work–home resource model (Brummelhuis & Bakker, 2012), compensation theory, ecological systems theory, social identity theory, or spillover theory (Demerouti, Peeters, & van der Heijden, 2012; Michel, Mitchelson, Kotrba, LeBreton, & Baltes, 2009).

Dynamics of Development, Depletion, and Restoration of Generalized Resistance Resources and of sense of coherence

Antonovsky was primarily interested in long-term development of sense of coherence and thus in long-term effects of generalized resistance resources as well. Following this long-term time frame, the enclosed chapters suggest to particularly look into critical transitions into new life domains or life phases where the challenges might outpace the development of generalized resistance resources, of specific resistance resources or of sense of coherence. Such transitions include entry into the educational system or into the job market, founding a family or reaching retirement.

In addition, several chapters conceptualize and test short-term dynamics between various generalized resistance resources, sense of coherence, and health. Research on restorative environments studies the daily "dynamics of depletion and renewal of resources needed for the maintenance and promotion of health and well-being" (Von Lindern, Lymeus, and Hartig, this volume). It offers several theories explaining the restorative processes, such as the psychophysiological stress recovery theory or attention restoration theory. According to this theory, an environment is restorative if it is "rich in fascinating features, is perceived as coherently ordered and of substantial scope, and is compatible with what the individual wants to do." These characteristics seem to strongly overlap with the comprehensibility and meaningfulness dimension of sense of coherence. Von Lindern, Lymeus, and Hartig point out that this theory could allow to study if a low sense of coherence is due to initially low generalized resistance resources or due to a persistent lack of restoring overused resources.

In the work setting, the effort-recovery theory looks at the day-to-day dynamics of recovery from work-related stress through cognitive-emotional detachment from work. The job demands resource model allows study of the dynamics of job resources, e.g., by disentangling stable and changing parts of job resources over time (Brauchli, Schaufeli, Jenny, Füllemann, & Bauer, 2013) or by looking into reciprocal relationships of gain and loss cycles between job resources and health outcomes.

Consider Positive Health Outcomes and Path of Positive Health Development

The chapter on "the salutogenic model of health—development from the early days to 1994" (Vinje et al., this volume) shows that Antonovsky wanted to move beyond categorical disease outcome by introducing the ease-/disease continuum. However, he refrained from defining positive health, partly to avoid the medicalization of health and its potential misuse by power holders. Still, most of the enclosed chapters on everyday settings make the claim that considering positive health outcomes is one of the key criteria for classifying research and practice as salutogenic. As mentioned above, also the WHO Ottawa Charta (1986) defined health positively as "social and personal resources, as well as physical capacities …. to reach a state of complete physical, mental and social well-being."

At the same time, most authors in this section agree that concrete measures of positive health outcome are urgently needed. The chapter on school settings proposes well-being, quality of life, being in control, action competence, and the ability to play and dance as measures of positive health.

Linking interventions to positive outcomes is also considered to better resonate with often positive everyday experiences of people in settings—a prerequisite for developing ownership of the interventions.

The chapter on restorative environments shows that restoration can be promoted by "allowing people to become *positively engaged with pleasantly interesting experiences* in the moment ..." (emphasis added). The chapter on salutogenesis at work shows that the job demands resource model emphasizes to study the positive, motivational path from job resources to engagement as a positive outcome in its own right. Further, the chapter illustrates how merging this logic with the generic health development model (Bauer, Davies, & Pelikan, 2006) results in the job demands resource health model (Brauchli, Jenny, Füllemann, & Bauer, 2015). This model suggests the simultaneous study of the two parallel paths of job demands leading to disease outcomes (pathogenic path) and of job resources leading to positive health outcomes (salutogenic path). In the latter case, resources are not only considered to be relevant for coping with life stressors as in the original salutogenic model. Resources are conceptualized and empirically shown to be directly related to positive health outcomes.

Relevance of Social Relationships in Settings: Need for a Group-Level Sense of Coherence in Settings?

Antonovsky's suggestion to conceptualize and measure sense of coherence on a group level has been repeated by several authors in our section. As summarized in the chapter on "the salutogenic model of health—development from the early days to 1994" (Vinje et al., this volume), Antonovsky's thought that sense of coherence can be an emergent group property in primary groups such as family, neighborhood, or immediate work groups. He defined a group with a strong sense of coherence as "a group whose individual members tend to perceive the collectivity as one that views the world as comprehensible, manageable, and meaningful...and ... a high degree of consensus in these perceptions" (1987, p. 174). He suggested several preconditions for the emergence of a group sense of coherence: duration of the existence of a collectivity, a group consciousness, overriding centrality in members' life, interwoven self-identity, and social identity. As key mechanism, he assumed that groups with a strong sense of coherence tend to structure situations such that they more likely promote individual sense of coherence and that these groups have the ability to activate its collective resources.

As settings are defined as social systems and as social relationships play a central role in their functioning, this idea of a group sense of coherence seems reasonable. However, at the same time one needs to ask if postulating and measuring a collective sense of coherence adds additional power or meaning for explaining health development in social systems beyond established concepts of social relationships such as social capital, social cohesion, connectedness, social inclusion/exclusion, sense of community, and collective action. In any case, group level health development processes deserve more attention as exemplified in the chapter on restorative environments by the example of collective restoration or in the chapter on salutogenesis at work by the case of shared job resources.

Inclusion and Equity Perspective

Several chapters make the point that settings are spaces in which diverse groups can be present. This implies to consider differences in health development between groups with different cultural and socioeconomic backgrounds or diverse life stages. At the same time, settings as shared social systems provide opportunities for linkages between and inclusion of such diverse groups, considering interdependencies, e.g., between socioeconomic status, working conditions, quality of family relationships, and quality of neighborhood. Conceptually, such an inclusive perspective is promoted by the whole systems approach of settings as exemplified by whole schools or whole universities. From a salutogenesis perspective, this would imply studying differential, clustered opportunities for generalized resistance resources in various life domains, as well as differences in levels of sense of coherence for socioeconomic subgroups within settings.

Last, Not Least: Salutogenesis for Guiding Interventions in Settings

Salutogenesis can guide interventions by pointing to generalized resistance resources, sense of coherence, and positive health as key outcomes. The asset orientation is particularly relevant for salutogenic interventions as it refers to the key role of (general resistance) resources that need to be identified and enhanced during interventions. Besides being considered as a key outcome, basic levels of generalized resistance resources and of sense of coherence could be considered as a prerequisite to successfully engage in the intervention process in the first place. The worksite chapter shows that a minimum level of job resources such as social support and recognition facilitates engaging in and benefitting from an intervention (Jenny et al., 2015). As pointed out in the chapter on restorative environment, taking part in interventions by itself requires attention—for example, by acquiring new knowledge and skills. Thus, at least

initially, interventions could be perceived as additional stressors and add to further depletion of attention resources.

Most chapters agree upon that participatory interventions are needed to assure perceived relevance and ownership of the content of the intervention. The chapter on correction workers points out that participation will lead to increased communication and involvement in decision-making—two processes identified by Antonovsky as particularly relevant for developing a strong sense of coherence. In order to capture simultaneously potential negative and positive characteristics of the intervention process, one could ask participants about the comprehensibility, manageability, and meaningfulness of the intervention. This intervention-related sense of coherence has been applied in a large-scale stress intervention study in organizations and shown to be positively related to outcome expectancies of the intervention (Jenny et al., 2015). As shown in the chapter of communities and neighborhoods, Bull et al. make a direct link between local development initiatives and sense of coherence: "By mobilizing the capacity and assets of people and places, local development initiatives will make sense logically in the local context (comprehensibility), (. . .) practically realistic (manageability) and they will be motivating because they are meaningful, based on involvement in decision-making processes (meaningfulness)" (Bull, Mittlemark, & Kanyeka, 2013, p. 171).

Further, most authors in this section agree that during interventions linkages between the settings of interest and its relevant environments need to be taken into account, as these environments are sources of higher order, upstream health determinants and simultaneously contain external beneficiaries of health promotion interventions. Some chapters indicate that intervention success in one setting might depend on experiences in other settings. The case of community/neighborhoods shows that particularly people with poorer jobs benefit from neighborhood interventions. Research on restorative environments, on effort-recovery and work–life balance all point to developing interventions to improve boundary management skills of people moving through various life domains over a course of the day in order to protect and restore key generalized resistance resources.

Conclusions for Future Research and Practice

The above review demonstrates that applying salutogenesis to various settings and linking salutogenesis with other models established in these settings has the great potential to generate ideas how to advance the general salutogenic model. First, it seems promising to study more the *temporal and spatial dynamics* of generalized resistance resources and

sense of coherence: short-term, daily changes, and relationships; relationships of generalized resistance resources and sense of coherence across settings; changes of generalized resistance resources; and sense of coherence in life transitions. Second, *specifying the salutogenic* model for a specific setting allows to select and to study relationships of the salutogenic model particularly relevant to the respective context. The case of the job demands resource health model shows how the pathogenic and salutogenic processes can be related. Third, the salutogenic model could be used for planning interventions that by themselves are comprehensible, manageable, and meaningful and thus support health development. Fourth, everyday settings remind us that life is not only about surviving Antonovskys "toxic river of life." Instead, settings in which people "learn, work, play, and love" are also a key source of positive life experience such as joy, growth, thriving, or flourishing—an emerging new area of research which could lead to an expanded salutogenic model.

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Lenneke Vaandrager and Lynne Kennedy

The advantages of the most energetic and active town life, with all the beauty and delight of the country, may be secured in perfect combination
(Ebenezer Howard: To-Morrow: A Peaceful Path to Real Reform, 1898)

Introduction

Communities and neighborhoods have re-emerged as important settings for health promotion; they are particularly effective for encouraging social processes which may shape our life-chances and lead to improved health and well-being (Biddle & Seymour, 2012); consequently, as Scriven & Hodgins, (2012) note, of all the settings (cities, schools, workplaces, and universities, etc.) communities are the least well-defined. Indeed, within the health literature, they are frequently referred to in terms of place, identity, social entity, or collective action.

(a) *Community as a place—the natural, physical, & built environment*
Territorial or place community can be seen as where people have something in common, and this shared element is understood geographically. Another term for this is "locality." As such community refers to physical characteristics in the green and built local environment *where* people live.

(b) *Community as individual and collective identity (sense of community)*
A second way of defining communities is as individual or collective identities. Communities are groups who share an interest or a common set of circumstances. It is based on notions of a common perception of collective needs and priorities, and an ability to assume collective responsibility for community decisions (Scriven & Hodgins, 2012). A concept also referred to as "sense of community," a community psychology concept, referring to the *experience* rather than its structure or the physical attributes (Chavis & Wandersman, 1990). Mc Knight and Block (2010) argue that the most significant factors determining one's health is the extent to which people are positively connected to each other, the environment they inhabit and the local economic opportunities. Or as Rutherford said, "Tend to the social and the individual will flourish" (Rutherford, 2008).

(c) *Community as social entity (cohesion, social capital)*
Neighborhood cohesion and social capital are central constructs when communities are defined as social entities. Neighborhood Cohesion has been referred to in the literature as a measure of cognitive and structural capability, community attachment, and the effect of residential stability on individual and contextual effects on local friendship ties, collective attachment, and rates of local social participation (Buckner, 1988).
A socially cohesive neighborhood "hangs together" in a way that component parts fit in and contribute towards a communities' collective well-being with minimal conflict between groups (Robinson, 2005). The British Government outlined its definition of community cohesion as follows: "Community Cohesion is what must happen in all communities to enable different groups of people to get on well together. A key contributor to community cohesion is integration which is what must happen to enable new residents and existing residents to adjust to one another" (Commission-on-Integration-and-

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Cohesion, 2007). This is particularly relevant in terms of ethnic, religious, social, and cultural affinity.

The second aspect of community as social entity, community social capital, is a salutary factor on a collective level and can be defined as "features of social organization such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefit" (Frohlich & Potvin, 1999). This salutary factor is not the individual him/herself, but the structure surrounding individuals; social capital is a community level or ecological factor. The central premise of social capital is that social ties and networks, although rarely visible, are an incredibly powerful and valuable resource (Elliot et al., 2012).

(d) *Community as collective action (reactive-resilience; pro-active community action)*

As collective action, there is a reactive form referred to as resilience and a pro-active form referred to as community action. Community resilience refers to the ability of individuals, families, communities, and neighborhoods to cope with adversity and challenges (Morton & Lurie, 2013). The idea of resilience is central to a strength-based or assets approach to health.

It must be taken into account that residents have various ways of "participating," being active in community life that look beyond participation in formalized activities. Participation takes place in spaces, private and public, and in activities they find meaningful as ways of being engaged in and practicing community life (Larsen & Stock, 2011).

A more pro-active view refers to community action. Community action means bringing people together to increase their voice in decisions that affect their lives, such as the way their living environment is planned or built. This collective action also changes the way people see themselves: not as individuals, struggling to be heard or acknowledged in some power relationship or another, whether this is "individual and the state," or "individual/group to individual/group," but part of a collective of shared interest and vision. Levels of social capital are shaped by the ability of specific communities to have a voice in the decision-making processes affecting them. Communities with less social capital are also perceived to have lower levels of mutual trust and reciprocity (Attwood, Singh, & Britain, 2003), bringing with it its own set of issues or problems such as increased isolation, segregation, exclusion, or marginalization of particular groups living in the same community.

Community Intervention Approaches

Community intervention approaches hold widespread appeal in health promotion and as such many have originated in response to the guiding principles of the Ottawa Charter (WHO, 1986). As mentioned, empirical evidence of a salutogenic approach in practice is relatively scarce and thus reviews of the literature yield limited results; alternative examples of community intervention approaches, relevant to salutogenic approach, are likely to emerge in future. For the purpose of this chapter we have chosen locality development, an assets orientation and community organizing, as current examples of promising application in the field.

Locality Development

Locality development serves as a base for other organizing, and, in itself, is often aimed at community-wide issues that affect everyone: economic development, education, employment, etc. Its goal is the building of community capacity to deal with whatever needs or issues arise. It also shows itself in smaller community projects—neighborhood cleanups, the building of a community playground, etc.—that help to define and build a sense of community among diverse residents of a locality (http://ctb.ku.edu/en/table-of-contents/assessment/promotion-strategies/community-development/main).

Assets Orientation

An assets-based model of health fits well with salutogenesis since it emphasizes the positive capacity of communities to promote the health of its members (Kawachi, 2010). A health asset has been described as "…any factor or resource which enhances the ability of individuals, communities and populations to maintain and sustain health and well-being and to help to reduce health inequalities. These assets can be social, financial, physical, environmental, or human resources, for example employment, education, and supportive social networks (Harrison, Ziglio, Levin, & Morgan, 2004). These assets can operate as protective and promoting factors to buffer against life's stresses" (Morgan & Ziglio, 2007, p. 18).

> **Box 1: Examples of Individual, Community and Organizational Health Assets**
> 1. *At the individual level*: social competence, resilience, commitment to learning, positive values, self-esteem, and a sense of purpose

(continued)

2. *At the community level*: family and friendship or supportive networks, intergenerational solidarity, community cohesion, religious tolerance, and harmony
3. *At the organizational or institutional level*: environmental resources necessary for promoting physical, mental and social health, employment security and opportunities for voluntary service, safe and pleasant housing, political democracy and participation opportunities, social justice, and enhancing equity

In an asset model, planners would ask how a particular community or setting can make best use of their resources (and maximize their assets) to help reduce health inequities by impacting on the wider determinants of health, to build stronger local economies, safeguard the environment and to develop more cohesive communities.

Community Organizing

Many definitions exist but in essence community organizing is a process where people are motivated to come together, as a collective, to address something of mutual importance; it is a dynamic process, which in itself is transformative, with the goal of action, change, and empowerment. It is regarded as a way of strengthening communities, through the transfer of power from the state to local people through community action (Bunyan, 2013). Of particular interest to community organizing is social power. Those with the greatest resources have the greatest power, those with the most knowledge have more force to influence the public debate (Speer & Hughey, 1995). Community Organizing is not about mobilizing people towards the interests or objectives of professionals in order, for example, to adopt normative behaviors, such as healthy lifestyle.

Communities as Complex Social Systems

In this chapter communities and neighborhoods are considered as open complex adaptive systems. The system (community) is perceived as the entity above the individuals in it, with its own characteristics and dynamics. What happens in systems is unpredictable, system components interact and synergies can occur; thus a linear approach does not apply. Systems components are systems themselves, and systems are part of other systems—e.g., a family is a system itself, which forms part of a community, and the community forms

part of the city—otherwise referred to as "nested system" or multilayered. The overall functioning of the system influences the health of individuals who are part of the components of the system (Wilson, 2009). The way that systems vary in the quality of living conditions, including the built, natural, and social environments has clear implications for community health (Wilson, 2009).

Communities and neighborhoods are embedded in cities as larger social systems. The notion of individuals and of their health, as a complex system is compatible with the more contemporary socioecological model of health, preferred by health promotion and public health professionals today. Individuals, families, communities, regions, and sociocultural and economic determinants of health are somewhat nested and *interact* with each other at each of these different levels as a complex and synergistic system, requiring a comprehensive system-wide response.

Link Between Healthy Communities and Salutogenesis

The salutogenic model remains at the heart of this chapter and will now be explored in relation to community and neighborhood. This model is based on two fundamental concepts: generalized resistance resources (GRRs) and the Sense of Coherence (SOC). GRRs are resources found within an individual or in their environment that can be used to counter the stressors of everyday life and construct coherent lives experiences. The SOC is the ability to identify and use resources in a health promoting manner. The approach of the salutogenic theory is to focus on the interaction between the individual, the community, and the environment. Relating the earlier described conceptualizations of community to the salutogenic model means that the locality, sense of community, cohesion, and social capital can be considered as GRRs and that collective action can be considered as the salutogenic mechanism of moving towards the health end of the continuum and building up GRRs. In everyday life communities are continuously affected by daily hassles and stress which one has to deal with. Whether the outcome will be salutary depends on how communities are able to manage tension by using the resources at their disposal. In this chapter we are specifically interested in the resources (and/or assets) inherent within the community and the associated processes enabling these resources to be accessed for the benefit of the community and its well-being. Community members share communal aspects that influence how they may interact with their surrounding context and stressors. These shared influences (sometimes referred to as collective SOC since it concerns a group rather than an individual) can enable populations to move towards the ease-end of the continuum (Antonovsky, 1996).

From a pathogenic perspective urban neighborhoods with many disadvantages are called "*riskscapes*" (Wilson, Hutson, & Mujahid, 2008). We suggest the term "*resourcescapes*" with healthy and equitable planning and zoning in communities and access to resources (GRRs) such as homes with gardens, local employment opportunities, easy commuting distances, accessible and affordable grocery stores, recreational and cultural facilities, parks, open space, healthy schools, and medical facilities fit with the salutogenic framework. One way to facilitate stronger SOC is to help raise awareness of available and "untapped" resources, which may enable people to take greater control of their own situation or health and well-being. Several tools now exist to help people and communities themselves to explore the inherent assets.

Possible social assets/resources in the community include for example the presence of adult role models who are employed in meaningful and rewarding jobs (Kawachi, 2010) and the presence of informal social control (Sampson, Raudenbush, & Earls, 1997). This concept refers to the capacity of a community to regulate behaviors of its members according to collectively desired roles.

The above examples of resources can also help communities to be more resilient against social and environmental transitions such air pollution, urban decay, man-made and natural disasters, and climate change. As the next section illustrates, healthy communities have healthy physical characteristics, a strong sense of community, and a strong social capital. Through a shared interest and vision and profiting from assets available, community members actively organize themselves for better health and well-being.

The link between how people feel and circumstances of their own lives, better equips them to survive adverse situations or circumstances (Foot & Hopkins, 2010). Little research however has been devoted to the variety of *mechanisms* that promote the development of a strong collective SOC (García-Moya, Rivera, Moreno, Lindström, & Jiménez-Iglesias, 2012). As Fone, Farewell, & Dunstan (2006) demonstrate, the ability to conceptualize, define, operationalize, and measure the specific resources and pathways within the social environment that link the neighborhood of residence to health outcome is complex and reliant upon sophisticated multilevel analysis (Lee & Maheswaran, 2011). Not foregoing this type of approach, examining the role of community and neighborhood from a salutogenic and strengths perspective requires us to unravel what is meant by a salutogenic pathway. But, as illustrated below, the difficulty in isolating key components within this pathway is in itself a challenge for researchers in this field and may well explain the paucity of research of an empirical nature into salutogenesis involving communities and neighborhood. Some may also ask if it is appropriate or possible, because to do so is to ignore the very complexity that characterizes such systems.

Current Literature on Salutogenesis, Community, and Neighborhood

In this part of the chapter we explore the relevant literature on how communities influence the health of its members. We primarily consider etiological research that is explicitly related to the salutogenic orientation and/or to key concepts of salutogenesis. Secondarily, we consider research relevant to salutogenesis and show how this research is related to this concept. The literature is brought together under the organizing structure used throughout this chapter of neighborhood or community as (a) a place, (b) connectedness (we combine sense of community, cohesion, and social capital) (c) social action.

Community as a Place to Live

Many physical characteristics of communities play a role as a resource or asset. They include features like infrastructure and transportation (see chapter on cities), enough "space" for everyone and contact to nature. Related to salutogenesis and the starting point that people and places are being produced in relation to each other especially making sense of the everyday living environment, plays an important role. Without attempting to oversimplify the complexity, we will describe some of the examples we found.

Research from social work practice (Jack, 2010) concurs that children's mental well-being is associated with sense of place or place attachment which grows out of person–environment interaction. Our use of space has changed over time, we spend significantly more time watching tv or travelling in vehicles and the average child now spends up to 16 h a day in the home compared with recent decades when children played outside and walked, sometimes a fair distance, to school (Ziviani, Scott, & Wadley, 2004); children however favor a mix of the home and garden, nearby streets, local open spaces, parks, playgrounds, and sports fields (Jack, 2010). Opportunities for increased time outdoors and in safe or enjoyable neighborhoods, are now recognized (Thompson, Aspinall, & Montarzino, 2008) and encouraged, particularly in terms of the built environment and the planning process (Cleland et al., 2010).

Research from cultural geographers (Lager, Van Hoven, & Huigen, 2013) showed that sense of belonging and well-being of elderly—despite the many changes in the neighborhood—is negotiated and practiced in everyday places and

interactions. This shows that, in line with salutogenic theory, people and place do not develop independently. Rather than specific assets or resources it seems more important that the elderly can age within a familiar and predictable environment.

Maass, Lindström, and Lillefjell (2014) analyzed data from a population study including measurement of SOC and a number of neighborhood variables in a city in Norway and found that overall satisfaction with the living area and social capital are related. SOC was the strongest correlate for health outcomes. However, they found differences between groups. Satisfaction with quality of neighborhood resources was significantly related to SOC in non-workers and low-earners and health outcomes in women. The authors recommended that deprived groups might benefit most from health promotion in the neighborhood.

Green Spaces and Contact to Nature

Access to natural environments is associated with a positive assessment of neighborhood satisfaction and time spent on physical activity (Bjork et al., 2008). On the other hand, these types of health effects have only been found for larger green spaces and not for smaller green spaces (Mitchell & Popham, 2008) and benefits that green space might offer seem easily eclipsed by other conditions such as car dependency (Richardson et al., 2012). Residents might also be more positive about green in their living surroundings if they are in general satisfied about where they live (Nielsen & Hansen, 2007), which suggests how important it is to acknowledge the interplay of different factors within the wider system. That is why van Dillen, de Vries, Groenewegen, & Spreeuwenberg (2011) and also Thompson and colleagues (2011) stress that it is worthwhile to further investigate the relationship between the quality of streetscape greenery, attractiveness of the neighborhood (or residential satisfaction) health, and well-being.

Compelling evidence exists for links between contact with green space and better mental health (Depledge, Stone, & Bird, 2011), however as the literature suggests, access to green space is variable according to where you live. A survey from the Netherlands, involving 25,000 people, reported that those living within 1 km of green space were more likely to have a stronger perception of good health (Maas, Verheij, Groenewegen, De Vries, & Spreeuwenberg, 2006). The most deprived groups are seven times less likely to live in green areas whereas adults in this poorest quintile, living near green space, benefit most (Mitchell & Popham, 2008). This is what Marmot refers to in his report as to "environmental injustice"—which he argues "the more deprived the community is, the worse the environments in which people live" (Marmot, et al., 2010)

Connectedness

Communities that are more cohesive, characterized by strong social bonds and ties, have been shown to be more likely to maintain and sustain health even in the face of disadvantage (Harrison et al., 2004; Magis, 2010; Morgan & Ziglio, 2007). A meta-analysis of 148 studies investigating the association between social relationships and mortality indicated that individuals with adequate social relationships have a 50 % greater likelihood of survival compared with those with poor or insufficient relationships (Holt-Lunstad, Smith, & Layton, 2010). The authors hypothesized that this may function through a stress-buffering mechanism or behavioral modelling, within social networks. Although this study was not specifically related to communities it still supports the importance of social ties for people.

As mentioned in the beginning of this chapter, social capital is central to salutogenic communities. Social capital is an asset of communities, *not* of individuals (Kawachi, 2010) and it is important to make a distinction between the bonding and bridging dimension of social capital (Szreter & Woolcock, 2004). Bonding social capital refers to trusting and cooperative relations between members of a group who are similar in terms of social identity (e.g., race and ethnicity), whereas bridging social capital refers to connections between individuals who are dissimilar with respect to their social identity (e.g., race, ethnicity, social class). Interestingly, bridging social capital is related to better well-being whereas bonding ties often turn out to be detriment to health of residents (Almedom, 2005; Kawachi, 2010) due to the tendency to favor the formation of groups formed on exclusivity rather than inclusivity.

Nevertheless, there is evidence to suggest that people with stronger social networks tend to be stronger, healthier and happier (Marmot et al., 2010). Critical to this is the social contact and social support that fosters greater self-confidence and reduces isolation in communities: "individuals need communities and communities need engaged citizens to survive" (Friedli & Parsonage, 2009, p. 15).

Indeed, Professor Marmot's review (Marmot et al., 2010) highlights the importance of strong social networks to people's health, by helping people to be more resilient and "bounce back" from adversity; his report presents strong evidence that social networks can help buffer against stressors of everyday life. In this he also refers to the value of communities in terms of the social relationships as a resource for health and well-being: "it is not so much that social networks stop you getting ill, but they help you to recover when you do get ill" (Marmot et al., 2010).

Community as Social Action

Kawachi (2010) describes three principles to build collective action from an asset-based model of health: (1) invest in a number of activities rather than one (2) pay attention to the type of social capital and especially invest in bridging social capital (3) make sure there is budget available. The benefits reach beyond the individual members and can therefore be seen as a government responsibility. This is critical if we are to avoid what some refer to as the misuse, or abuse, of adopting an assets-based approach, to shift culpability away from central or local government onto individuals and communities. Obviously, balance between the two is more realistic and as this section illustrates, helpful in empowering communities for better health and well-being.

According to Larsen and Stock (2011), constructing a collective identity (collective SOC?) in a neighborhood, based on hegemonic narratives of the neighborhood, of its history and development, can be particularly useful in strengthening community attachment. These authors (ibid., p. 20) stress that "residents have various ways of 'participating' in community life that look beyond participation in formalized activities. Participation takes place in spaces, private and public, and in activities they find meaningful as ways of being engaged in and practicing community life".

Current Research: Interventions

In this section we outline examples of typical (programmatic) action areas: based on descriptive evidence presented above, including, where available, literature on the effectiveness of interventions, from research that explicitly relates to the salutogenic orientation.

Salutogenic interventions are not only about making sure resources are *available* to people and communities but also about creating opportunities to help people to *recognize* these resources exist in the first place so they can utilize them better. These types of interventions aim to improve the person–environment fit in the microsystem of communities. Fundamentally, resources therefore should be meaningful to the people concerned; as already suggested above, access to resources is variable. Moreover, meaningfulness associated with different resources is also highly subjective, varying between people and places. Thus, efforts to address inequalities in health, associated with place, must start from and be initiated by the people, members of the place, themselves.

Community as a Place

The number of initiatives of promoting health and well-being in natural environments is growing. We have selected a number of case studies/examples to illustrate this: (a) access to green space (b) community gardens, (c) natural green playgrounds for children, and finally (d) day care on farms, e.g., for young people who have difficulties to function effectively in mainstream society.

Supporting communities and environmental improvements to the natural or green spaces, built environment and public spaces have been shown to positively influence mental health. For example outdoor physical activity has been found to be particularly beneficial for people's well-being, with evidence that outdoor walking groups have a greater impact on participants' self-esteem and mood than the equivalent activity indoors (Bragg, Wood, & Barton, 2013; Burls, 2007); access to green spaces has been associated with reduced inequalities in health (Friedli & Parsonage, 2009). On the other hand, landscape design will not affect a move towards the positive side of the health continuum if the green interventions are "too simplistic" since the relationship between green space and health is complex (Lee & Maheswaran, 2011). Moreover, the positive effects of place result from the interplay of salutogenic mechanisms. According to MIND, a mental health charity in the UK, the natural outdoors is a key factor in promoting mental health and well-being as part of building resilient communities (mind.org.uk). Their research identified benefits of being outdoors as a very strong theme, with people citing garden allotment (home-grown food) groups as particularly helpful because they combine a range of different elements that have a positive impact on their well-being, including physical activity, being in a social group and being outdoors.

Not only are green environments healthy in the sense of being outside, also the collaborative active involvement in the maintenance of natural areas can contribute to better health and well-being. For example, gardening promotes an active lifestyle (Van den Berg & Custers, 2011) and contributes to healthful eating, and children show more active and social type of play in a green outdoor environment than in a traditional playground. Besides the positive results of these initiatives, being involved in the development or maintenance of these types of initiatives can also be as rewarding, promote self-efficacy and esteem and thus promoting health.

An example of a salutary factor in a neighborhood is a community garden which encourages outdoor activities,

physical activity and meaningful engagement, socialization with neighbors as well as aesthetic enhancement. In a Swedish study three perceived qualities of the green neighborhood environment with salutogenic potential were identified: historical remains (culture), silence such that sounds of nature can be heard (serene) and richness in animal and plant species (lush) (de Jong, Albin, Skärbäck, Grahn, & Björk, 2012).

A recent study in Wales pointed out that community gardening provides community gardeners with various social, mental and physical resources, which can make it easier for people to perceive their lives as meaningful, structured and understandable. Social initiatives in natural environments can support learning experiences to move towards the ease-end of the health continuum (Esdonk, 2012). The Liverpool-city council is also one of the best-performing local authorities securing parks and green spaces. Besides many other economic, environmental, and health rationales they also recognize advantages for communities and people. In their green infrastructure strategy they write: "Parks are places to meet and celebrate with family and friends. They are inclusive and accessible. They are venues for community festivals, events and sporting activities. Parks are the scene of excitement, refreshment, relaxation, and solitude". In Liverpool 35,512 people were brought together in parks in 2009/10. More than 30 parks have direct links to community and friends groups. Their voluntary involvement and decision-making directly improves community empowerment and well-being (Liverpool-City-Council, 2012).

Outdoor nature contact is also important for children. Research suggests they prefer and rank highly vegetation in neighborhood parks, playgrounds, and backyard gardens compared with other places (Lee & Maheswaran, 2011). In many cities in the Netherlands, municipalities have started to develop green playing fields in inner city areas as an alternative for school yards constructed of stone. Green playing grounds contain a greater diversity for playing and nurture the health and development of children (Dyment & Bell, 2008; Van den Berg & Van den Berg, 2011).

Some interventions are characterized by and successful specifically because of the focus on time spent outdoors in green or natural community settings, rich in natural resources, such as the care farm. One study, based on qualitative interviews with young socially excluded males, participating in 6-months intervention on "care farms" in The Netherlands, whereby farmers host young people in need of specific, typically social work intervention, revealed that a range of resources—at the individual, "household" (albeit temporary), organizational, or environmental— could be linked to the personal development and an increased SOC of the young men. A diversity and richness of resources (and stressors!) created various opportunities

for learning: making sense, interpreting, and giving meaning to resources and stressors (Schreuder et al., 2014). Interestingly, young people found, or rediscovered, a sense of meaningfulness, purpose, and structure through small, taken for granted or everyday aspects such as connection with nature, animals, and people; employment, rules, reciprocity, and respect. This work offers insight into the benefits for some people with complex needs of re-connecting with nature, the environment, and basic social networks.

Place-Related Design Principles

Healthy communities are compact and well-connected. Environmental health planners recommend what they call "mixed-use design" (Lee & Maheswaran, 2011). Mixed-use design refers to using the land for varied reasons such as residential, retail, and employment combined with "connectivity" characterized by short distances between places of interest. Based on a review of current evidence (Brown & Grant, 2007) recommend five possible salutogenic interventions central to a "healthy community" design:

1. Paying attention to the green design of roads and transport routes as they reduce stress in the people travelling along them. They describe the Dutch "woonerfs" (home zones) as examples which include lots of street trees, verge planting, and soft surfaces.
2. Providing a range of open spaces for people to use and to observe: parks, gardens, terraces, squares, verges and river banks, not only in residential spaces but also in the surroundings of businesses.
3. Balancing soft surfaces and vegetative cover for local air hygiene and temperature control.
4. Providing trees for shade and shelter, visual interest and nearby nature.
5. Build in health using nature as an integrated element of planning: "Nature is not merely an amenity, luxury, frill or decoration. The availability of nearby nature meets and essential human need."

Connected Communities

In terms of the evidence that healthy (strong) communities or neighborhoods contribute to health and well-being, Elliot et al. (2012) concluded that little or no evidence existed for interventions that transformed neighborhood relationships in ways that enhanced collective resources per se, but fairly strong evidence for interventions focused on affirmation of social identity, rather than transformative interventions

focused on power, succeed in forging strong social relationships between a group of people and is good for health (e.g., community gardens); particularly interventions bringing previously isolated individuals in contact with others who share a common experience (such as healthy ageing) (Lezwijn, Naaldenberg, Vaandrager, & van Woerkum, 2011).

Nash (2002) promotes a comprehensive approach with essential elements of social work functions such as linking, consensus building, and community organizing. They also recommend this approach is informed by values of cultural competence and empowerment. Sharing neighborhood history evokes emotions of belonging (Larsen & Stock, 2011), whilst community gardening can help promote social identity through increased sense of belonging and reciprocity and mutuality (Hale et al., 2011; Saldivar-tanaka & Krasny, 2004; Teig et al., 2009; Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007).

An early childhood intervention programme, KidsFirst in Canada, which aimed to enhance social capital and social cohesion at community level, managed to bring the community together through conducting broad and targeted community consultations, and developing partnerships. The programme enabled vulnerable families to enhance connectedness among themselves, link them to services and to integrate them in the larger community (Shan, Muhajarine, Loptson, & Jeffery, 2012). Investing in social connectedness is however not a panacea for health and sometimes can facilitate negative or perverse consequences (Kawachi, 2010) such as exclusion of outsiders, intolerance of diversity and restrictions on individual freedoms.

Social Community Action

The ability of residents to organize and engage in collective action enables residents of communities to lobby for safety in the neighborhood (Baum, Ziersch, Zhang, & Osborne, 2009), to rally against closure of (health) services (Mooney & Fyfe, 2006), or to manage informal care (Kawachi, 2010). Often this is facilitated by the presence of local organizations.

In the development of social or community action, "trust" plays a central role. The extent to which people are able to participate in the social, economic and cultural life of their communities clearly depends on the level of trust between community members. In situations where individuals are both empowered and experience a certain level of "trust", they are more likely to participate in action leading to changes in situations for the better (Ward & Meyer, 2009). This also helps explain the reported success of various

autonomously organized urban initiatives (Kremer & Tonkens, 2006).

In the area of disaster management and based on salutogenic principles that communities can develop adaptive capacities to respond and recover from adverse events, O'Sullivan and colleagues (2015) developed a structured interview matrix which was an effective technique to enhance connectedness, common ground, collaborative action, and awareness of existing services and supports in each community.

Synergies Between Improving Place, Connectedness and Community Action and the Wider Determinants of Health

Improving place, connectedness and community action have been described as separate matters, but in fact there is strong synergy between the three and therefore it is questionable whether some of the studies reported here are categorized under the best heading.

An example of a wider community based salutogenic approach is the Mersey Forest project in Liverpool, UK. The aim of this project is to get people involved in the design of their Greenspace, encouraging them to step outside and take ownership of the space. They help to maintain it, benefitting their health through the physical work, developing social skills (Maas, van Dillen, Verheij, & Groenewegen, 2009) and improving mental health, and for some breaking the cycle of fear and isolation from living alone in a large city. This project has helped to grow food on community allotments, and create new community gardens and orchards, sport facilities, and wildlife areas. A critical success factor of this project is not only the green environment but also the utilization of the opportunities (assets) different community groups bring together (Forestry-Commission-England, 2012) and the empowerment gained through the process of collective engagement or social action.

This interrelation of various determinants of health within communities also relates back to the point we made in the beginning of this chapter where we stressed that communities are complex social systems. In addition, health advancement is clearly also not only connected to the community level. An example of this interrelatedness and the role of more distal determinants is the fact that in egalitarian societies with strong safety nets and adequate provision of public goods, neighborhood contexts may be less salient for the health of residents in contrast to segregated and unequal societies as the US (Kawachi, 2010).

Implications for Salutogenic Practice

In this section, it is important to clearly show what we can learn from this broad literature for advancing the field of salutogenesis—and how the field of community health could benefit from being more explicitly linked to salutogenesis.

Reducing traditional risk factors in neighborhoods remains a relevant and important objective for health promotion. It is equally, some argue, important to redress the balance between the traditional focus on risk and deficit and an assets model. This being the case, underpinning assets approach with salutogenic theory, so a better understanding of how the salutogenic model translates into community and neighborhood level health promotion policy and practice, is therefore required. Unravelling the complex relationship between SOC and GRRs—in the context of community and neighborhood—is an important first step.

Antonovosky originally articulated the need to appreciate the reciprocal or mutual requirement of his salutogenic model: both a strong sense of SOC and interaction with GRRs. Salutogenic research has illustrated this time after time, not least in research conducted in the community and neighborhood, where social connectivity is a clear example of a GRR.

In practical terms, we can conclude that from a salutogenic perspective, rich environments for learning and meaningful contexts seem to play an important role at the community level. As many salutogenic community interventions might be influenced by other broader structural factors i.e., poverty, unemployment, and economic crisis, investing in communities should be complemented by wider structural interventions (Szreter & Woolcock, 2004).

Implications for Salutogenic Research

We found that the available evidence explicitly based on salutogenic theory is limited. However, there are a number of disciplines which apply a similar frame of mind but do not link this to the theory of salutogenesis. We recommend people interested in this area to look in other disciplines than health promotion such as urban sociology, cultural geography and social work. We found that there is a lot of thinking in the same direction (interaction between environment and how people think, perceive their environment).

Opportunities exist for a greater emphasis on salutogenic theory in all areas of social policy including housing, regeneration, youth and community work, young people and play, community safety and policing, education and employment.

There is an abundance of evidence of a relationship between strong social connection or connectivity and enhanced sense of health and well-being. How this plays out at the community level is more difficult to articulate. Research into communities where social capital and cultural capital are seen as GRRs is largely lacking (Lindström, 2012). More research is required that adopts a salutogenic lens for interpreting health and well-being within this context. Recent examples (Dunleavy, Kennedy, & Vaandrager, 2014; Schreuder et al., 2014) have attempted to use the theoretical framework of salutogenesis to identify potential GRRs and the underlying mechanisms of health development; although useful and, seemingly logical, one of the challenges of this approach is to stay critical about what we label as GRRs and SOC. A more inductive type of research is also needed to further examine when a resource becomes a GRR.

A salutogenic community approach/asset approach of creating rich, social, and physical environments for learning and meaningful contexts leads to improved outcomes in a range of domains, and it is difficult to capture them (and certainly only measuring SOC makes little sense). More work is needed to help develop appropriate indicators for both the assets approach and salutogenic theory and other strength-based approaches.

Effects of a salutogenic community approach might not be visible immediately but might take a long time. Health Promotion is however used to this challenge. For decades now we have had to educate researchers and policy makers from other fields or familiar with more traditional paradigms to recognize the relativist and distal nature of so many of the outcomes from health promotion practice. As already mentioned, the complexity of community systems confounds this further. We must therefore seek to develop a range of indicators to measure health and well-being at the community level; if we can break this down further into key concepts to be associated with salutogenic processes then this will be progress. New research designs are also needed to capture effectiveness questions.

Challenges for the Future

To date, the majority of research into salutogenesis has been from a quantitative perspective. This is understandable given that Antonovsky's work focused around the SOC and subsequently the use of SOC scale in attempting to explain causal explanations between individual and particular health outcomes. This approach has some merit for researchers interested in enabling the promotion of health through communities, social networks and social action. It is

however most likely to result in the characterization of certain community types or behavior in terms of strong or weak SOC. Although extrapolations can be made, based on the evidence base for a relationship between SOC and health and well-being, this approach seems limited, largely due to our limited understanding of the precise mechanisms of "what creates SOC and salutogenic setting or place," such as a community (e.g., workplace, neighborhood). More research, particularly involving qualitative inquiry, is needed to explore the closeness of fit between existing theory and experience.

Cross-cultural comparisons of subjective experience are also warranted to test out existing ideas linking salutogenesis with community and neighborhood health in different settings. We need to be confident that the key terms and concepts we develop are relevant in any context. Finally, more evidence is needed especially from other societal contexts, for example in less developed countries.

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The Application of Salutogenesis in Cities and Towns

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Introduction

This chapter casts light on how cities can facilitate good health through urban planning, design and organization, and collaboration across sectors. The way we organize cities is one aspect of the social determinants of health and can manifest or balance several aspects of social injustice. The focus of this chapter is on how Health in all policies (HiAP) can be implemented at the city level, and in which ways the WHO's Healthy City Network contributes to this work.

The chapter focuses on matters of planning and maintaining infrastructure, including transportation systems, green spaces and walkability, as well as matters of environmental justice across cities. We take a closer look at the evaluations of HiAP, as well as the Healthy Cities approach, and to what degree they facilitate long-lasting cross-sector collaboration. We discuss whether and how a salutogenic orientation can link places and environmental resources to health outcomes and explore the implications of this approach for salutogenic practice and salutogenesis research.

Key Concepts and Cultural, Practice, and Research Contexts

The WHO focuses on creating settings which allow for the experience and development of good health: "Health is created and lived by people within the settings of their everyday life; where they learn, work, play and love" (WHO, 1986). Health and health equity in all local policies are the overarching theme, recognizing that a population's health is not merely a product of health sector programs, but is also largely determined by policies and actions beyond the health sector.

To create cities which allow inhabitants to lead active, healthy lives and to experience well-being and quality of life is right at the core of this goal. Planning processes tend to focus on enabling "active living" in the residential context of individuals. This includes enhancing possibilities for social participation and physical activity. The main objective is to "make people active participants in their own life, empowered, understanding what is important for health and (. . .) be able to use the resources" (Lindström & Eriksson, 2011).

This chapter casts light on factors and processes within cities and urban planning that have been linked to favourable health outcomes. It includes research with a clear perspective towards the positive aspects of life (resources, health, well-being, quality of life). Cities are understood as complex systems, where physical, social, and organizational aspects all interact. We apply a town planning perspective, with a focus on the directly influenceable aspects of the setting, namely the physical environmental and organizational/public policy issues. In addition to health literature, we also include research from the fields of town planning and geography.

Salutogenesis and the Urban Environment

Within the salutogenic orientation, the focus is on the upstream conditions for experiencing good health and quality of life: instead of trying to reduce damage in areas or in populations at risk, including health in the planning processes of urban environments can improve living conditions along the whole social gradient of health (Lindström &

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Eriksson, 2011). The concept of healthy cities includes a variety of aspects linked to people's possibility of experiencing and developing good health in the urban environment. Cities are complex systems and include a variety of smaller micro-systems such as neighbourhoods, workplaces, and schools. The city itself is experienced on the basis of what happens within and between these micro-systems. Both the micro-systems and the larger system of the city in which they are embedded include aspects of people, place, nature and the built environment, and the broader social and political context.

Even though a growing body of research attempts to explore the relationships between urban living environment and health, and a number of voices have called for a guiding theory to systematize this knowledge, few studies explicitly apply the theory of salutogenesis. Applying salutogenesis to the city context allows us to include resources at various levels of experience (such as streetlights and sense of place) and link them to health outcomes through the concepts of generalized resistance resources and sense of coherence: environmental resources can be internalized and become generalized resistance resources, thereby strengthening sense of coherence (Antonovksy, 1993). Bull, Mittelmark, and Kanyeka (2013) put it this way:

> By mobilizing the capacity and assets of people and places, local development initiatives will make sense logically in the local context (comprehensibility), (. . .) practically realistic (manageability) and they will be motivating because they are meaningful, based on involvement in decision-making processes (meaningfulness). (p. 171)

The experience of good health depends on the interplay between environmental resources and individual sense of coherence. If and how resources are used may partly depend on sense of coherence: while a stronger sense of coherence might allow for health-promoting use of resources even in a resource-poor environment, easily identifiable and useable resources might be crucial for engagement in health-promoting behaviour for people with a weaker sense of coherence. Merely placing resources into a context might primarily benefit people with a strong sense of coherence, and thereby could even widen the gap in health (Cohen et al., 2012).

However, high satisfaction with the quality of resources might contribute to balance out the drawbacks of a weaker sense of coherence (Maass, Lindström, & Lillefjell, 2014). Focusing on developing resources which are perceived as adequate by deprived groups might therefore be a beneficial strategy to reduce health inequality (Maass et al., 2014).

Thus, salutogenesis offers a theoretical framework which allows us to link environmental resources to health outcomes and to the development of a strong sense of coherence. Moreover, it also calls for us to focus on the processes involved in the establishment and maintenance of resources.

This thought is right at the heart of the HiAP approach; systematic focus on health, the health impacts of policy decisions, and the development of public policies on a global, national, and local level. Applying HiAP involves identifying health-related policies and developments across sectors, assessing the impact of decisions, and advocating for positive change. The focus is on the broad social and environmental determinants of health, and the goal is to create healthy environments and achieve environmental and social justice. One of the core features of HiAP is to encourage collaboration and build long-lasting networks between sectors, decision-makers, stakeholders, and the public, and reduce health inequalities (Olilla, Baum, & Pena, 2013; Ståhl, Wismar, Ollila, Lahtinen, & Leppo, 2006).

Environmental Justice

Inequalities across and within cities are one aspect of social injustice in health (WHO, 2007, 2012a, 2012b). Health inequalities that are consequences of environmental inequalities are part of the so-called environmental justice domain (WHO, 2012b). Environmental justice consists of two dimensions: distributional and procedural justice (Kruize, Droomers, van Kamp, & Ruijsbroek, 2014).

Distributional justice refers to the spatial distribution of environmental risks and resources. Most research in this domain has focused on risk factors that are distributed unequally across cities and neighbourhoods. However, the neighbourhood context essentially also involves the availability of, and access to, health-relevant resources. For example, in neighbourhoods with lower socioeconomic status, there are fewer free facilities for physical activity than in high socioeconomic status neighbourhoods, whereas the number of paid facilities does not differ (Li, Fisher, Brownson, & Bosworth, 2005).

Procedural justice refers to individuals' or communities' opportunities to take part in and influence decisions and planning processes, which, in turn, create the environmental conditions for daily living. Procedural justice might thereby not only benefit the involved individuals or groups in terms of well-being and empowerment, it can also contribute to creating environments that fit the needs and wishes of inhabitants (Kruize et al., 2014). The Healthy City approach aims at reducing both distributional and procedural injustice within cities.

The Healthy City Network

The Healthy Cities project of the World Health Organization (WHO) was established in 1987 in the European Region as a strategy for implementing Health for All at the local levels

of government (WHO, 2012a). The core aim of the project is to improve health by addressing the determinants of health and the principles of Health for All and sustainable development, by providing governance and partner-based planning for health. Today, it is recognized as a global public health movement both at the local level and within the WHO European region. Healthy Cities give explicit political commitment to improving their citizens' health. By offering a coherent set of enduring qualities, elements, and goals, they acknowledge major health challenges and the economic, physical, and social factors that influence these challenges. An important aspect of the WHO Healthy Cities project is that, in line with salutogenic thinking, it focuses on the community as a whole, with its strengths and barriers, rather than on single issues or diseases.

This approach integrates the concepts of people and place and has clear intentions to promote health across the lifespan, to improve social determinants of health, and to improve conditions for daily life (WHO, 2007, 2012a, 2012b). This includes income and access to resources, training, people and places, transport, climate changes and sustainability, with individuals and communities being empowered. Places can be perceived as enabling by offering social, material, and affective resources (Hand, Law, McColl, Hanna, & Elliott, 2012). In their review of the Healthy Cities initiative, Barton and Grant (2013) identified 12 major topics through which cities can increase the health of their inhabitants, located on different levels of the city-system. In this chapter, the focus will be on the topics of overall planning and urban form, transport and accessibility, green spaces, recreation and physical activity, infrastructure, urban design and environment quality, and coordination and politics.

Context is important: something that can be a resource in one neighbourhood or some social groups, might not work as such in another neighbourhood or for other social groups. Culture, gender, and age might influence perceptions and use of resources (Angotti, 2013; Bai, Stanis, Kaczynski, & Besenyi, 2013; Krenichyn, 2004). For example, children's active lifestyle seems to be dependent on an overall "activity-friendly" context, which includes fewer parking spaces (de Vries, Bakker, van Mechelen, & Hopman-Rock, 2007). Adolescents are attracted to proximate low-cost, well-maintained facilities that offer preferred activities (Ries et al., 2008). For older adults, proximate locations and accessibility to key resources were linked to social participation (Richard et al., 2013). The relative importance of the residential area and its resources differs across groups, and might partly be dependent on having access to other important societal arenas, like the workplace (Maass et al., 2014). Additionally, different factors promote heath in

healthy and in less healthy people (Fuller, Stewart Williams, & Byles, 2010).

This highlights the importance of grounding interventions in the local setting and drawing on local resources and stakeholders, and include contextual matters. For example, population density has been linked to both positive and negative health outcomes; reflecting that population density in an urban context is usually lower in high socioeconomic status neighbourhoods. However, areas that have been described as highly resilient in spite of material deprivation were found to be characterized by being densely populated and situated near, but not at, the city centre (Pearson, Pearce, & Kingham, 2013). Land-use mix has been linked to physical activity, among other factors, through the variety of destinations for walking (Gidlow, Cochrane, Davey, Smith, & Fairburn, 2010; Millward, Spinney, & Scott, 2013).

Infrastructure, Transportation, and Active Travelling

Infrastructure influences health and well-being through the distribution of resources, opportunities for activity, and social meeting places that can facilitate social connectedness, possibilities for outdoor recreational activity, and active travel (Lenzi, Vieno, Santinello, & Perkins, 2013; Shimura, Sugiyama, Winkler, & Owen, 2012). For example, levels of satisfaction with a residential area are linked to how long it takes to travel to important locations, rather than mere distance (Delmelle, Haslauer, & Prinz, 2013). Safe conditions for active travel can enhance physical activity (Fuller et al., 2010; Wen, Kite, Merom, & Rissel, 2009). Different groups have varying needs in regard to transport and communication around transport (Raerino, Macmillan, & Jones, 2013). Especially for minors, the elderly and the physically impaired, the availability, and accessibility of transportation can have a major impact on the possibilities for independent living (Raerino et al., 2013). Even minor disabilities can heavily influence possibilities for active living and independence, and thus the need for proximate, accessible, and inclusive infrastructure and available public transport (Levasseur et al., 2011; Norgate, 2012; Wen et al., 2009). Planning and design of transportation systems and outdoor spaces in line with the principles of Universal Design can enhance the accessibility of resources for these groups and promote active travelling for a wider population.

Active travelling, such as walking and biking for transport and leisure, is an important aspect of a healthy city. The "walkability" of a city district refers to its environmental and social aspects that influence walking. High walkability of a district has been shown to increase walking among its

inhabitants and has been linked to positive health outcomes, both directly and indirectly, through increase in physical activity and social contacts (de Nazelle et al., 2011; Hankey, Marshall, & Brauer, 2012; Leyden, 2003). Children who are allowed to walk on their own near where they live tend to play more outdoors, and environments that promote greater independent mobility increase physical activity in children (Kuo et al., 2009; Wen et al., 2009). For older people, frequent walking (and perceived accessibility to key resources) is positively associated with social participation (Richard et al., 2013). High walkability of a district can motivate increased physical activity among both healthy and less-healthy older adults (Fuller et al., 2010; Shimura et al., 2012).

Moreover, the perceived friendliness and pleasantness of a place—the aesthetics—can influence behaviour and social relations: for example, walking in the neighbourhood, stopping and chatting with your neighbour, or letting your children go out and play. Aesthetics also play an important role for walking for recreation (Kaczynski, 2010). To improve visual appeal is one goal in "active living" urban planning (Faskunger, 2013).

However, the health benefits of walking are partly dependent on other factors, such as air pollution (Hankey et al., 2012). Again, aspects of environmental justice become visible in this context: the so-called sweet spots—characterized by high walkability and low air pollution—are almost exclusively situated in high socioeconomic status districts located near but not at the city centre (Marshall, Brauer, & Frank, 2009).

Green spaces, Recreation, and Physical Activity

Proximity to green spaces, including everything from the surrounding landscape to urban parks and gardens, might play an important role in health promotion: associations between distance to a green space and health as well as health-related quality of life are found repeatedly, independent of which measure of green space is applied (Mitchell, Astell-Burt, & Richardson, 2011; Stigsdotter et al., 2010). Kyttä, Broberg, and Kahila (2012) even found that green space was the only urban variable directly connected to children's perceived health. Relationships between green space and health are influenced by gender, ethnicity, socioeconomic status, living context, green space type, and climate (Cohen et al., 2012; Lachowycz & Jones, 2013).

Matters of quality can become prominent in some settings or for some social groups (Bai et al., 2013). For example, women seemed to be more dependent on perceptions of safety and the presence of others for engaging in physical activity in their park (Krenichyn, 2004). Accessibility of green spaces is one aspect through which

environmental injustice becomes visible across cities, with high socioeconomic status neighbourhoods usually being closer to and including more green spaces compared to poorer areas (Angotti, 2013; Moseley, Marzano, Chetcuti, & Watts, 2013).

Additionally, there seem to be differences in the degree to which users perceive their proximate green spaces as matching their needs, with a special emphasis on cultural and age-dependent aspects (Angotti, 2013). Thus, mere physical proximity might not give a realistic picture of the accessibility of green spaces (Moseley et al., 2013).

In addition to facilitating physical activity, research suggests there are psychological benefits deriving directly from contact with nature: attention restoration, stress reduction, and positive emotions (Abraham, Sommerhalder, & Abel, 2010; Lachowycz & Jones, 2013). Moreover, green spaces can enhance social well-being through social integration, participation, and engagement within the context (Abraham et al., 2010). In particular, access to waterways or coastal lines, "urban blue", seems to be linked to well-being, engagement in recreational activities, stress reduction, and the development of a strong attachment to the place (Cox, Johnstone, & Robinson, 2006).

Sense of Place

Attachment and feelings of belonging to a place play an important role in experiencing quality of life and positive identity (Nogueira, 2009; Tartaglia, 2013). "Sense of place" has become a popular public health construct, even if there is little empirical evidence on how to achieve it, and its role in health promotion (Frumkin, 2003). Sense of place has also been labelled as a motivator for physical activity, both among healthy and less healthy older adults (Fuller et al., 2010). While some research suggests that sense of place is highest in high socioeconomic status neighbourhoods, associations between sense of place and self-perceived mental health do not seem to be dependent on neighbourhood socioeconomic level (Williams & Kitchen, 2012).

Links Between Environmental Resources, Place, and Salutogenesis

As mentioned above, a number of resources in the city context have been linked to favourable health outcomes. Mostly, health benefits are explained by enhanced physical activity, social and local connectedness, and/or reduced health inequalities. There are few studies examining the links between city resources, sense of coherence, and health outcomes. Emerging evidence suggests that the development of a strong sense of coherence might be dependent on

processes linked to planning, establishment, and maintenance, as well as perceived quality of resources (Bull et al., 2013; Maass et al., 2014). This is linked to the context-dependence of resources.

Research on Interventions

While a growing body of evidence links various characteristics of cities to positive health outcomes, planning, implementing, and evaluating interventions in this area is challenging. As cities are complex systems with many interrelated factors, interventions might work in different ways than expected. A number of evaluations of HiAP, the Healthy City Network, and related projects nevertheless give insight for integrating a positive health approach into city planning and administration (Olilla et al., 2013). A sustainable implementation of HiAP is dependent on strong leadership and advocacy, and political will to implement these strategies on a local as well as on a higher level of organization. Yet, over-dependence on local or individual knowledge of health determinants could lead to fragmented efforts and assessments and limited understanding of the broader environmental- and health impacts of particular projects (Dora, Pfeiffer, & Racioppi, 2013).

Development and increased use of strategic environmental and health impact assessments on a variety of decisions and policies could be described as one important step towards implementing a HiAP approach (Winkler et al., 2013). Moreover, successful policy implementation was dependent on public support. Including democratic processes in decision-making could increase sustainability and long-term effects, and simultaneously ensure legitimacy (Marmot & Allen, 2013).

Evaluations of the Healthy City Network

Evaluations of the Healthy City Project across countries have used a variety of measurements and indicators, mainly reflecting the different starting points of cities in high- vs. middle- and low-income countries. Whereas cities in low-income countries could still struggle with providing basic infrastructure like adequate waste disposal and access to clean water, cities in richer countries were able to focus on building networks and establishing inter-sector collaborations (Harpham, Burton, & Blue, 2001). Overall, evaluations reveal that success is highly dependent on political and material support for the ideas and principles of the Healthy City (Donchin, Shemesh, Horowitz, & Daoud, 2006). Aronson, Norton, and Kegler (2007) found that conflicting views regarding the importance of intervention

on social and living conditions, versus intervention on individuals' lifestyle, were reduced through implementing a healthy cities approach. In contrast, Boonekamp, Colomer, Tomas, and Nunez (1999) found that health programs developed in the wake of the Healthy City Project still focused on personal and individual changes, rather than structural issues. Since then, Kegler, Painter, Twiss, Aronson, and Norton (2009) claimed that the Healthy City Project was helpful in developing a broad-based coalition of residents and community sectors and facilitated community participation. In their evaluation of the project in developing countries, Harpham et al. (2001) found clear differences as to the degree to which awareness could be raised, with two cities adopting a clear settings approach. They also found that the projects mobilized considerable resources and improved inter-sector collaboration.

The role of individual project ambassadors and coordinators and their capacity to facilitate engagement was examined in several evaluations (e.g., Donchin et al., 2006; Harpham et al., 2001). One of the major challenges identified was a lack of resources following the Project, as well as the need to develop overarching evaluation systems and theories to integrate knowledge and develop interventions based on evidence (Rychetnik et al. 2012; Pluemer, Kennedy, & Trojan, 2010). Another major challenge was to establish collaborations between different sectors which could last over time (Harpham et al., 2001; Pluemer et al., 2010). The pressing need to establish such cooperation can be illustrated by describing some of the features and processes which are necessary to achieve high walkability.

Walkability: An Example of the Need for Cross-Sectorial Collaboration Over Time

Highly walkable city districts are characterized by high street connectivity, high density, traffic safety, and varied land-use mix (Cerini, Saelens, Sallis, & Frank, 2006; Saelens, Sallis, & Frank, 2003; Wilson et al., 2011). Factors that increase safety in terms of both traffic and crime, such as adequate street lights, broad and connected sidewalks, and matters of over-viewing the scenery can be important determinants of walkability especially for seniors (Cerini et al., 2006; Li et al., 2005; Shimura et al., 2012; Wilson et al., 2011). Moreover, as most walks are made to non-home locations, a variety of destinations seems to facilitate walking. Access to recreational facilities, restaurants and bars, grocery stores, and cultural sites within 1000 m can create a "neighbourhood of opportunity" (Millward et al., 2013).

Among seniors, destinations that facilitate social interaction—restaurants, churches, etc.—and provide opportunities

for incidental social contact were the strongest predictors of walking (Nathan et al., 2012). As orientation skills can decrease with age, the distinctiveness of places becomes crucial: landmarks and distinctive buildings seemed to be more important for orientation than signage (Philips, Walford, Hockey, Foreman, & Lewis, 2012). The urban living environment can also be used directly to facilitate engagement and physical activity in the residential context. For example, Ferney, Marshall, Eakin, and Owen (2009) found that giving detailed information about the neighbourhood and the local context increased walking more than did information on the benefits of walking, and the effect of the intervention lasted longer (Ferney et al., 2009). To achieve high walkability, it is not only crucial to include town planners and health workers, but also to incorporate thoughts about health and health promotion into regulation plans, stimulate cultural and commercial activity, and ensure good maintenance.

Procedural Environmental Justice and Inclusive Planning at the Local Level

Projects that include citizens in the planning and creation of areas and resources often find that the created places are used more frequently, and generate higher levels of satisfaction among their users, compared to top-down projects. This is consistent with the principle that projects and decisions gain legitimacy by applying democratic processes in their planning and implementation (Marmot & Allen, 2013). Participation in planning processes seems to improve well-being, increase social capital, expand social networks, and promote empowerment for the involved individuals and communities (Semenza, 2003; Semenza & March, 2009; Semenza, March, & Bontempo, 2006; Twiss et al., 2003).

Despite being resource intensive, isolated programs and interventions have little impact over time. What impact they have seems to be dependent on their ability to involve community partners and stakeholders and facilitate engagement among inhabitants, and offers possibilities for learning and skill-building (Claus, Dessauer, & Brennan, 2012; Twiss et al., 2003). Interventions highlight the importance of processes through which resources are developed. Procedural environmental justice is highly influenced by power distributions on a larger scale: people with more resources usually have better access to the planning processes, as well as important societal information channels such as media. Developing local procedures which include various groups in the decision-making processes is one important aspect of developing and implementing sustainable healthy policies (Marmot & Allen, 2013).

Evaluations of interventions in line with the Healthy City Network's principles highlight the importance of health-promoting processes on a broad level, rather than focusing on singular resources (Angotti, 2013; Barton & Grant, 2013; Boonekamp et al., 1999):

- City governments should work with a wide range of stakeholders to build a political alliance for urban health. In particular, urban planners and public health workers should communicate with each other.
- Attention to health inequalities within urban areas should be a key focus when planning the urban environment, necessitating community representation in policy making and planning.
- Action needs to be taken on an urban scale to create and maintain the urban advantage in health outcomes through changes to the urban environment, providing a new focus for urban planning policies.
- Policy makers at national and urban levels would benefit from undertaking a complexity analysis to understand the many overlapping relations which affect urban health outcomes. Policy makers should be alert to the unintended consequences of their policies.
- Progress towards effective action on urban health will be best achieved through local experimentation on a range of projects, supported by the assessment of their practices and decision-making processes by practitioners. Such efforts should include practitioners and communities in an active dialogue and mutual learning.
- A focus on developing health-promoting and empowering processes for the creation and maintenance of public spaces might be a more beneficial approach to the creation of healthy cities, than a focus on isolated aspects and resources.

Discussion

In line with salutogenic thinking, a growing body of research is looking at how the design and maintenance of cities affects the positive side of health and well-being. Moreover, focus on the upstream indicators (planning processes, HiAP, looking at "the whole gradient" rather than focusing only on deprived groups/places) reflects a salutogenic way of focusing on improvement of the general conditions for active, healthy living. Health is experienced as a dynamic interplay between personal variables and contextual factors. Additionally, cities have to be understood as organic systems, where each part affects every other part. All this is reflected in the challenges faced by the Healthy City Network, particularly in the difficulties of developing universal strategies and

methods to implement and evaluate the goals of the Network.

On a more specific level, a few studies have linked individual sense of coherence to the presence and quality of resources, as well as the degree of involvement in planning settings and implementing changes. This chapter highlights the context-dependence of resources: what constitutes a resource can differ between places and between people. Research suggests interactions between the perception and use of environmental resources, sense of coherence, and health outcomes. The health-promoting and empowering effects of resources seem to be dependent on quality as well as matters of participatory planning and implementation. This highlights the importance of public policy, from a global to a local level: "Policy frameworks are used to construct the coherence needed to form healthy societies" (Lindström & Eriksson, 2011). Additionally, resources can be found at different levels of experience—from the very specific level, such as street lights and sidewalks, to more complex and abstract levels, such as sense of place.

Implications for Salutogenesis Practice

The complexity of the city system calls for a focus on inter- and cross-sectorial collaboration. Who should be involved in the development, design, and maintenance of facilities? The example of walkability highlights the interplay between various factors, involving a variety of agents. The health-promoting effect of walkable ways, for example, might be sabotaged by bad maintenance of lights and renovation, changes in the number and quality of destinations (such as closing shops in the city centre), social climate or decisions made at higher levels, such as land use regulations (Rychetnik et al., 2012). Overcoming the barriers between sectors and developing inclusive processes across sectors highlight the importance of including health considerations in all policies (Olilla et al., 2013; Ståhl et al., 2006). Moreover, the importance of these processes calls for a focus on implementation: How can planning be put to action? More experience in this area is needed from various contexts.

Further, it might be beneficial to aim at strengthening sense of coherence and improving conditions for good health, instead of focusing on health-promoting behaviour. Developing strategies and gathering more knowledge on how environments and environmental processes can enhance comprehensibility, manageability, and meaningfulness of cities might prove to be a beneficial strategy for practice. Focusing on improving environmental and personal conditions for health might also contribute to balancing inequalities in health by allowing people to make better use of environmental resources.

Implications for Salutogenesis Research

The majority of research in this field focuses on the planning side, while less is known about the process of implementation, and to what degree healthy city interventions really improve health outcomes. Consequently, researchers have called for developing tools, methods, and instruments for implementation and evaluation of the impacts of healthy urban planning.

Using salutogenesis as a guiding theory to describe how health can be promoted in the city context turns the focus towards an internalization process: how does an environmental resource become a resistance resource? More knowledge is needed in order to learn more about internalization, and how it can be facilitated through the living environment. Likewise, the question of when and how an urban feature can become a resource in a local setting seems to be influenced by the degree of citizen involvement in the planning, design, and administration of the feature. Is it possible that being involved in these processes is beneficial for internalization, thereby enhancing health? A closer look at the concept of generalized resistance resources—what characterizes them, what distinguishes them from other concepts, and how they are put to use—might be a beneficial approach for exploring the internalization process and how it is influenced by environmental issues. Can we define conditions for, and qualities within resources that enhance their "internalizability"? The Healthy City setting represents a complex setting and includes people throughout their life courses. Thus, it might offer a number of opportunities for learning more about the development of sense of coherence, and its impact on health through different stages of life.

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The Restorative Environment: A Complementary Concept for Salutogenesis Studies

Eike von Lindern, Freddie Lymeus, and Terry Hartig

Introduction

People deplete adaptive resources in facing the demands of everyday life, and environments differ in the support they afford for renewal of depleted resources. Environments that promote the renewal of adaptive resources, called restorative environments, have attracted attention in diverse disciplines. Both theoretically and practically, work with restorative environments can complement work guided by a stress perspective on adaptation that focuses on demands from the environment and ways of minimizing and mitigating them. Work concerning restorative environments thus shares with salutogenesis studies a positive perspective on circumstances that promote health, effective action, and well-being.

The two fields also have common roots in the study of stress, and they have emerged and taken form during roughly the same period from the 1970s on. Despite their similarities in perspective and origin, however, the two fields appear to have developed largely in parallel, without systematic exchange. Many researchers interested in restorative environments do refer to salutogenesis in a broad sense and have some familiarity with the literature on salutogenesis; however, those who study salutogenesis in the tradition of Antonovsky would find that little research on restorative environments has empirically addressed theoretical claims concerning, for example, the sense of coherence as a generalized resistance resource. Our reading of the literature on salutogenesis suggests to us that this neglect is mutual.

In this chapter, we consider how research on restorative environments can augment research on salutogenesis by calling attention to the dynamics of depletion and renewal of resources needed for the maintenance and promotion of health and well-being, and by showing how the sociophysical environment comes into play in people's ongoing efforts to manage diverse resources. We also consider how research on salutogenesis can augment research on restorative environments by encouraging a broader view of the kinds of resources that can be depleted and the different levels on which they are organized and become available. In this chapter, we thus indicate areas for more systematic, reciprocal exchange between the fields.

In the first of the following sections, we outline the restoration perspective and define key concepts and contexts of research on restorative environments. In the next section, we go on to overview theoretical and empirical research on restorative environments. In the subsequent section, we discuss implications of research on restorative environments for further research and for interventions that bridge the concerns of the two fields. In the final section, we consider some challenges for the future, covering possible reasons why exchange between the fields has been limited and reasons why both fields would benefit from engaging more systematically. Throughout, we provide points of entry into the literature for researchers and practitioners in both fields.

Key Concepts

In this section, we discuss the restoration perspective and four key concepts: resources, the antecedent condition of resource depletion, the restorative environment, and constrained restoration. Throughout our discussion we consider similarities and dissimilarities in thinking about salutogenesis and restorative environments.

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Table 19.1 Perspectives on human adaptation to the environment

	Stress Perspective	Coping Perspective	Restoration Perspective
Theoretical premise	Heavy demands can undermine adaptation	Readily available resources support adaptation	Adaptation requires periodic restoration
Practical premise	Interventions can eliminate or mitigate demands	Interventions can enhance the availability of resources	Interventions can enhance opportunities for restoration
Relation to salutogenic perspective	Contrast: comparable to the pathogenic perspective	Congruent: subsumes the salutogenic perspective	Complement: calls attention to issues of resource depletion and renewal

Environmental psychologists have long understood that the study of restorative environments provides a needed complement to inquiry into stress and coping (Saegert, 1976; Saegert & Winkel, 1990). More recently, this complementarity has been framed in terms of different perspectives on adaptation to changing environmental circumstances (Hartig, 2001, 2008; Hartig, Bringslimark, & Patil, 2008). Each of these perspectives is defined in terms of its basic theoretical and practical premises, summarized in Table 19.1.

The contrast between the stress and coping perspectives resembles the contrast between the pathogenic and salutogenic perspectives outlined by Antonovsky (1979). The impact of stress on health has from the start been a major concern of salutogenesis research. While stress has more traditionally been viewed as a pathogenic factor that engenders susceptibility to illness and ill-being and that should therefore be eliminated or avoided, the salutogenic perspective accepts that stressful demands are omnipresent and that stress is unavoidable and to some degree even desirable in any normal life (Antonovsky, 1979). For research on salutogenesis, the central questions have thus become: How can people stay healthy despite experiencing extremely stressful circumstances? And what causes health (as opposed to what causes disease)?

For its part, the restoration perspective complements the stress and coping perspectives—and the pathogenic and salutogenic perspectives—by noting that even though a person may have ample protection from environmental demands as well as ample resources available for use, that person will still need to periodically restore adaptive resources. A person unavoidably depletes some resources while pursuing goals and otherwise going through the activities of daily life, and this may make it difficult to proceed even though other resources may remain available. It is therefore necessary to restore depleted resources to continue with mundane activities and to maintain adaptation to the environment.

Resources

Our outline of perspectives reveals a common concern for adaptive resources, just as it indicates that the study of restorative environments differs from salutogenesis studies in its emphasis on resource depletion, renewal, and, by implication, resource management. Consider the differences between the resources of interest. Salutogenesis research takes interest primarily in individual or societal resources that support people in maintaining or improving their health and well-being despite the presence of stressors. In salutogenesis research, two key health resource concepts have been defined: generalized resistance resources and the sense of coherence.

Generalized resistance resources can be understood as biological, material, and psychosocial factors that help people perceive their lives as consistent, structured, and understandable or meaningful (Antonovsky, 1987). The sense of coherence is a "global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected" (Antonovsky, 1979, p. 123). A strong sense of coherence is thought to enable people to manage their lives, even when unpredictable events happen, as with a major illness or the loss of a job. Of particular note, salutogenesis research has emphasized the stability of sense of coherence across situations, with the relative strength of sense of coherence consistently influencing a persons' susceptibility to stress.

In contrast, restorative environments research takes interest in resources that can vary greatly in their availability over time, including cognitive capabilities such as directing attention, physical capabilities such as mobilizing the body for action, and social capabilities such as the ability to call on a friend for help. Concomitantly, it also takes interest in the

circumstances that cause the availability of resources to vary across everyday situations, particularly the types of person–environment encounters that deplete resources and those that help people recover adaptive capabilities. Given recognition of the mundane and often predictable depletion of resources, as well as the ways in which people regularly use environments for restoration, research in the field also takes interest in the deliberate management of resources and the acquisition of skills in managing resources, as through meditation techniques (Kaplan, 2001; Lymeus, 2008).

The difference between the two fields in the treatment of resources is significant. The facts of resource depletion can aid understanding of variation within individuals in adaptive proficiency. The availability of resources referred to in salutogenesis research might show level shifts due to events such as losing one's job or making new friends, but changes in resources over the course of a day or week are not the main concern in salutogenesis research (Antonovsky, 1979).

Rather, Antonovsky assigned little weight to minor fluctuations or momentary deviations from a more global and general sense of coherence, thereby discounting the importance of the kind of changes in resource levels that are of concern in restorative environments research. Research on restorative environments, on the other hand, assumes that these resource dynamics can influence a person's functioning from day to day and accumulate to substantially affect health and well-being in the longer term. These resource dynamics can also play a role in the availability of generalized resistance resources as discussed from a salutogenic perspective. For example, a person's sense of coherence may depend on the adequacy of regular restoration of other resources; a seemingly stable low level of sense of coherence may reflect circumstances of persistent inadequacy of more basic resources needed to meet recurrent adaptive demands.

Antecedent Condition for Restoration

We have indicated that research on restorative environments assumes that people deplete adaptive resources as they pursue goals and otherwise try to meet the requirements of everyday life. This assumption is logically necessary, as the potential for restoration only exists if some resource has become depleted. A task for research is then to describe how the resource becomes depleted and the consequences of its depletion. Conceivably, this task can be undertaken with any psychosocial resource, including sense of coherence (cf. Hartig, 2004).

Also as indicated earlier, adaptive resources take different forms. It follows that the antecedent conditions from which people can restore can differ substantially in

character, as can the circumstances needed for renewal of the given resource. Along with the specification of the antecedent condition, the description of the process of restoration is a basic concern of any theory about restorative environments (Hartig, 2004). To date, given the discounting of the dynamic aspects of sense of coherence, theory has not systematically addressed the circumstances under which it becomes transiently depleted or environmental supports for its recovery. When such a theory will be developed, it will presumably have features in common with those theories that have been formulated to address the restoration of other resources. We will discuss those theories in the next section. In this section, we consider the concept of restorative environment in general terms.

The Restorative Environment

Regardless of which resource has become depleted, a precondition for its restoration is that the sociophysical environment will support that process. Environments can support restoration in two general ways. First, a relative absence of perceived social and physical demands (e.g., crowding, noise, reminders of paid work, or other obligations) in an environment may permit restoration. Second, certain qualities of the environment can promote restoration.

Defined in a positive sense, then, restorative environments do not only permit restoration, but also promote restoration, enabling faster, more complete recovery of depleted resources than environments that are relatively free of demands but which lack positive features. Restorative environments can accordingly be defined as environments that both permit and promote restoration (Hartig, 2004). Given that sense of coherence and other generalized resistance resources of interest from a salutogenic perspective are subject to the kinds of resource dynamics of concern in the study of restorative environments, one could ask just what environmental conditions are needed to support the renewal of those resources; that is, what depleting conditions should be absent, and what restoration promoting conditions should be present?

Constrained Restoration

In attending to environmental conditions that promote versus only permit restoration, research on restorative environments has enabled a theoretical distinction between environmental conditions that deplete resources and those that disallow or slow restoration (Hartig, Catalano, & Ong, 2007; Hartig, Kylin, & Johansson, 2007; von Lindern, 2015; von Lindern, Bauer, Frick, Hunziker, & Hartig, 2013). The distinction becomes particularly meaningful when

considering the causes of chronic stress. Stress can become chronic when stressor exposures persist, when one is unable to acquire new skills or resources to better cope with those stressors, when one cannot manage to apply the resources at disposal more efficiently, and when one fails to adequately restore needed resources that have been depleted. The concept of constrained restoration recognizes that the failure to adequately restore may occur for reasons other than the direct effect of stressor exposures. A person may not be able to restore depleted resources because of prevailing environmental conditions that overlap little with the stressor exposures that deplete resources and which are not themselves perceived as direct sources of stressful demands.

For example, in the initial work on this concept, Hartig, Catalano, et al. (2007) treated cool summer weather as an environmental condition that people could easily avoid by staying indoors, but which would in turn limit access to outdoor environments of relatively high restorative quality. Looking at monthly data over an 8-year period, they found that dispensation of antidepressants to the Swedish population was higher during relatively cool Julys compared to warmer Julys, the period when many workers take the greater part of their annual vacation.

Thus, environmental characteristics that constrain restoration need not impose substantial demands on a person's resources, yet they can contribute to chronic stress by impairing the restoration of resources that were depleted earlier. Given that the dynamics of resource depletion are relevant for a discussion of generalized resistance resources as considered from a salutogenic perspective, the possibility of constrained restoration also becomes relevant for salutogenesis research.

Key Cultural, Practice, and Research Contexts

One broad objective for restorative environments research is to inform environmental strategies for supporting restoration. Such strategies may be embedded within a specific therapeutic or rehabilitative intervention, but they are not limited to contexts of therapy or rehabilitation. By focusing on ordinary forms of depletion and renewal of adaptive resources, restorative environments research takes interest in the full range of environments in which people commonly face demands and find opportunities for restoration. These environments incorporate social and cultural characteristics as well as physical ones, and they ordinarily involve the performance of particular activities. By way of illustration here, in the following we discuss several broad environmental categories that have received substantial attention to date: natural environments and urban environments, residential environments, and health care environments.

Natural and Urban Environments

Embedded as they are within urbanized societies, restorative environments researchers often work with a pragmatic and coarse distinction between urban and natural environments. On the one hand, they are concerned about the harmful consequences of stressful conditions in urban environments in which so many people spend some of their time. On the other hand, they are concerned about the loss to ongoing urbanization of natural environments that support restoration. Although the restorative values of seemingly untouched wilderness have long been acknowledged in the literature (Knopf, 1987), the natural environments used in studies as relatively restorative comparison conditions are rarely completely natural, in the sense of being untouched by human activity.

Rather, putting aside a strictly objective definition, researchers and practitioners have focused on the restorative value of environments perceived as relatively natural and on opportunities for contact with nature wherever they might occur, from urban parks to indoor plants (Hartig, Mitchell, De Vries, & Frumkin, 2014; Kaplan & Kaplan, 1989). It can thus be sufficient that vegetation or some other representation of nature comes into a person's subjective awareness.

Reflecting these definitional issues, researchers often use terms such as "green space," "open space," or simply "nature" to identify the environmental construct of interest. The terminological choices may themselves reflect the background of the given researchers or practitioners, who come from diverse academic and professional disciplines, such as environmental psychology, human geography, interior design, landscape architecture, and occupational therapy.

Recent years have seen a reaction against the notion that nature should always be regarded as the more restorative alternative to an urban environment. Some researchers have noted that the environments used in studies—often dominated by streets and sidewalks with busy pedestrian and vehicular traffic—do not well represent the urban environment (Karmanov & Hamel, 2008), and that many environments in the urban context, such as cafés, are frequently sought out and enjoyed for restoration despite an absence of natural content (Staats, Jahncke, Herzog, & Hartig, 2016; Staats, Van Gemerden, & Hartig, 2010).

Theories in the area, reviewed later, do offer explanations for why natural environments might more effectively support restoration than other environments, but they do not deny the possibility of restorative experiences in urban surroundings. Both relatively natural and relatively urban environments may support restorative processes such as psychophysiological stress recovery or attention restoration (details given later) to the degree that they enable experiences with particular components. Some types of

environments are more likely to support such experiences, and these environments may be defined as generalized resistance resources from a salutogenic perspective and as such contribute to a sense of coherence.

Residential Environments

Another common focus for restorative environments research and practice involves the everyday residential context in which people spend so much of their time. The concern for where people live often overlaps with the concern for the relative restorative qualities of natural versus urban environments, as with studies of self-reported health or different causes of mortality in relationship to green space near the residence (e.g., De Vries, Verheij, Groenewegen, & Spreeuwenberg, 2003; Mitchell & Popham, 2008). Such studies commonly assume that nearby green space can over time become positively associated with indices of health through pathways that involve the cumulative effects of repeated episodes of adequate restoration in the residential environment (Astell-Burt, Mitchell, & Hartig, 2014; Hartig et al., 2014).

Not all of the research concerned with restoration in the residential context is, however, concerned with contact with nature in and around the home. Some research has, for example, considered how architectural characteristics of densely built urban residential areas can boost restorative quality (Lindal & Hartig, 2013). Beyond such specific issues, research in the area recognizes that people associate their home with personally important activities and find in the residential context many possibilities for satisfying basic psychological and social needs (e.g., Hartig, Johansson, & Kylin, 2003; Lawrence, 1987; Stokols, 1976).

Many people withdraw into the home after a long day of work or studies, detach from the outside world, and engage with people and activities in ways that promote restoration not only of physical and cognitive resources but also social resources, including resources of potential interest to students of salutogenesis. Studies in different disciplines looking over many different cultural contexts indicate that residence or "home" is commonly associated with feelings of security, control, permanence and continuity, relatedness, and refuge from the outside world (e.g., Després, 1991; Somerville, 1997), all of which in one way or another can figure in restorative experiences that might contribute to a strong and stable sense of coherence.

In line with this idea, research on people's self-identified favorite places has offered a window into the use of the residential environment for restoration as subordinate to an overarching process of self-regulation that serves multiple functions, including the maintenance of a coherent representation of reality and a favorable level of self-esteem (Korpela & Hartig, 1996; Korpela, Hartig, Kaiser, & Fuhrer, 2001). Other recent research acknowledges that the restorative qualities of residential environments may become constrained by environmental conditions such as traffic-related exposures (e.g., von Lindern, Hartig, & Lercher, 2016) and by efforts to cope with work demands by bringing paid work into the home (Ahrentzen, 1989; Hartig, Kylin, et al., 2007).

Health Care Environments

Like the foregoing environmental categories, the final category we will consider here includes diverse contexts constituted of varying combinations of people, activities, and physical environmental features. Also, just as the residential and natural categories overlap with each other, so does the health care category overlap with each of them. Guided by theories about restorative environments, much of the research in this area has considered how contact with nature can support caregiving in a range of institutional settings, some of which are residential in character.

There are many examples: screens showing nature imagery in waiting rooms for people about to give blood (Ulrich, Simons, & Miles, 2003), large landscape scenes presented on curtains around beds where patients laid while undergoing an uncomfortable bronchoscopy procedure (Diette, Lechtzin, Haponik, Devrotes, & Rubin, 2003), window views of trees from a hospital room in which patients spent several days recovering from surgery (Ulrich, 1984), window views over the surrounding landscape from the rooms of patients going through rehabilitation programs several weeks in length (Raanaas, Patil, & Hartig, 2012), and outdoor garden spaces at assisted living facilities in which elderly people were receiving daily care during the remainder of their lives (Dahlkvist et al., 2016; Ottosson & Grahn, 2005).

Although the contexts vary widely, and with them the specific issues addressed in the provision of care, a common concern is to help people better cope with pain and stress induced by illness, treatment, and the environment in which treatment takes place. The literature tends to affirm the value of contact with nature in these environments, providing positive distractions that help to buffer people against pain and stress and promoting more rapid recovery from the stress of treatment they nonetheless experience, whether acutely or over extended periods.

Moreover, work in this area recognizes that benefits of restorative amenities in health care environments can accrue not only to those who receive care, but also to those who provide it and to the family members and friends who are there to support care recipients (Hartig & Cooper Marcus, 2006). From a salutogenic perspective, such outcomes can

help people maintain their sense of coherence by enhancing the manageability of care, and perhaps as well its comprehensibility and the meaning it holds.

Theoretical and Empirical Research

In the foregoing section, we introduced the restoration perspective and defined key concepts and contexts for research and practice concerned with restorative environments. In this section, we give an overview of theories about restorative environments and additional empirical research. Our coverage here of empirical findings from experimental, epidemiological, and clinical studies is only illustrative; the research area has expanded rapidly in recent years, and an exhaustive treatment of the many developments is beyond the scope of this chapter. The overview nonetheless enables us to note points of relevance for the study of salutogenesis.

Basic Theory and Research on Restorative Processes

The environmental qualities that permit and promote restoration are the subject of two prominent theories in environmental psychology, namely, psychophysiological stress recovery theory (Ulrich, 1983; Ulrich et al., 1991) and attention restoration theory (Kaplan, 1995; Kaplan & Kaplan, 1989). These theories grew out of concern for the psychological values of natural environments, and they have guided much of the research in the area so far, which has focused predominantly on the relative restorative value of natural environments. In specifying an antecedent condition from which a person restores, both refer to work done with individual resources under the general environmental stress rubric (Hartig, 2004). In the following, we will outline these two theories, as well as three more recent theoretical proposals that address knowledge gaps with respect to the resources under consideration, restorative processes, and the conditions in sociophysical environments that support those processes.

Psychophysiological Stress Recovery Theory

The psychophysiological stress recovery theory (Ulrich, 1983; Ulrich et al., 1991) is concerned primarily with environments as people see or view them. It focuses on the affective response to particular stimulus patterns and contents in the visual stimulus array. The theory assumes that some visual characteristics support stress reduction and that this has an innate basis. Stress is one manifestation of the operation of an evolved affective system that directs approach and avoidance behavior.

For example, an acute stress response may be triggered by visual stimuli that are perceived as threatening, such as a looming dark shape. That affective response involves the physiological activation necessary to execute appropriate behavior, such as fighting or fleeing. Pleasant emotions are considered as another part of the same evolved system; an affective response to visual stimuli that signals an opportunity for relaxation and recovery of depleted adaptive resources. The process of stress recovery is thought to be initiated by positive affective responses that derive from perceiving a scene as mildly to moderately interesting, pleasant, and calm.

Restoration will be facilitated if the visual stimulus array has moderate depth, moderate complexity, provides a focal point, and contains particular environmental contents. It is believed that the characteristics typical of savannah landscapes (e.g., with regard to the shape and distribution of trees and grassy uniform ground) as well as the presence of water are especially likely to evoke restorative responses, because these landscapes resemble the primary environments of human evolution, when the given characteristics signaled possibilities relevant for survival.

Following a stressful transaction with stimuli that are perceived as threatening to well-being, a person viewing such a pleasant scene will feel positive affects replacing the negative ones, affirming that well-being is being fostered instead of threatened. The person will concomitantly experience decline in physiological activation to a more moderate level . An innate tendency to respond this way in appropriate situations would hold survival value by enabling faster recovery from acute stress and so providing protection against chronic stress and ensuring the ability to adapt to changing circumstances in the long term.

Empirical support for this theory has been discerned in the results of experiments in laboratory and field settings by Ulrich (1979), Ulrich et al. (1991), and others (e.g., Hartig, Evans, Jamner, Davis, & Gärling, 2003; Parsons, Tassinary, Ulrich, Hebl, & Grossman-Alexander, 1998). Importantly, very similar theoretical notions that seem to have been developed without awareness of Ulrich's work have also received experimental affirmation. Specifically, Fredrickson and Levenson (1998) tested an "undoing hypothesis" that invokes essentially the same affective mechanism for stress recovery described in 1983 by Ulrich; positive affect evoked by some environmental stimuli blocks negative affect and thoughts and enable more rapid, complete psychophysiological stress recovery. Such studies speak to the plausibility of the theory. Looking across multiple experiments, one meta-analysis has affirmed the beneficial effects of contact with nature in terms of reduced feelings of anger, anxiety, fatigue,

and sadness; however, they found too few suitable experiments to reliably affirm physiological benefits (Bowler, Buyung-Ali, Knight, & Pullin, 2010).

Attention Restoration Theory

Another prominent theory concerned with restorative environments is attention restoration theory (ART) (Kaplan, 1995; Kaplan & Kaplan, 1989). It construes effective functioning as fundamentally reliant on the cognitive ability to direct attention; that is, to willfully focus on what is necessary or relevant for fulfilling a specific task (e.g., writing a report) and so to inhibit processing of irrelevant stimuli (e.g., a conversation in the hallway) and inappropriate behaviors (e.g., angry outbursts). The capacity to direct attention is limited in its momentary span, so that high simultaneous demands limit the ability to handle additional demands (Choi, van Merriënboer, & Paas, 2014; Lavie, 2005).

It is also limited in its temporal scope, so that sustained efforts to direct attention can deplete the resource, which brings with it gradually impaired performance and, eventually, fatigue of the self-regulatory capability (e.g., Cohen, 1980; Kaplan & Berman, 2010; Langner & Eickhoff, 2013). ART assumes that many commonplace tasks and other everyday demands tax the directed attention resource. It follows that having sufficient opportunities to restore the capability to direct attention is important for effective functioning, health, and well-being.

In contrast to environments that require individuals to direct their attention to function effectively, restorative environments support an effortless mode of operation (Kaplan & Kaplan, 1989). This means that individuals can attend and act in accordance with their own inclinations by simply letting their attention go to what they find interesting. According to ART, an environment is restorative if it is rich in fascinating features, is perceived as coherently ordered and of substantial scope, and is compatible with what the individual wants to do.

Additionally, a restorative environment permits a person to have a sense of psychologically being away, not having to engage with routine mental contents, including those associated with everyday tasks and demands. Taken together, these characteristics allow people to become positively engaged with pleasantly interesting experiences in the moment, with few constraints and interruptions. This, in turn, enables rest of the neurocognitive foundations of directed attention. Regular restoration can thus protect against fatigue and self-regulatory failures that could otherwise have undesirable consequences and it can mitigate

stress by bolstering the resources needed to deal with demanding or threatening situations. Kaplan and Kaplan (1989) assert that natural environments, more than most environments, provide such restorative opportunities (see also Kaplan, 1995; Kaplan et al. 1998).

Empirical support for this theory has been discerned in the results of true and quasi-experiments in laboratory and field settings, some of which have concerned single, brief occasions spent in natural versus urban environments (e.g., Berman, Jonides, & Kaplan, 2008; Hartig, Evans, et al., 2003; Hartig, Mang, & Evans, 1991) or different kinds of natural environments (e.g., Gatersleben & Andrews, 2013; Ratcliffe, Gatersleben, & Sowden, 2013) and others of which assumed repeated contacts with nature in a residential or therapeutic context (e.g., Kuo & Sullivan, 2001; Cimprich, 1993; for a selective review, see Kaplan & Berman, 2010). In their meta-analysis, however, Bowler et al. (2010) could not reliably affirm attentional benefits of nature experiences on the basis of the results available at that stage in the development of the literature.

Social Aspects of Restorative Experience

The theoretical contributions just reviewed acknowledge the significance of social aspects of the environment in different ways. Much of the emphasis in their discussions of social aspects is however negative. Interactions with others are considered as causes of resource depletion, as when high social density imposes demands on attention, or they are considered with regard to a need for restoration, as when a hard-pressed individual too quickly shows irritation or a lack of attentiveness toward others. More recent work in environmental psychology has, however, begun to more deliberately consider how other people can help to advance the process of restoration.

This positive view of how others figure in restorative experience is treated more extensively in work by Staats and colleagues, who have described how others may enable more restorative experiences, as when one person helps another to feel safe when going into a wild forest area, as well as enhance restorative experiences, as when exploring an environment and discovering its particular features together (e.g., Staats et al., 2010, 2016; Staats & Hartig, 2004). The significance of social roles and social circumstances that may positively or negatively impact restorative experiences is also apparent in von Lindern's (2015) discussion of how restorative environments research can be informed by insights from behavior setting theory. This will be outlined in more detail as follows.

Insights from Behavior Setting Theory

Many studies on the association between access to natural environments and human health assume that a key pathway involves repeated restorative experiences over time (for overviews see, e.g., Abraham, Sommerhalder, & Abel, 2010; Hartig et al., 2014). Such findings encourage the perception that, from a salutogenic perspective, natural environments can be regarded as generalized resistance resources. It is too simplistic to assume, however, that adding natural elements to any given environment will necessarily promote restoration, health, and well-being. It is important to bear in mind that restorative environments research does not focus on particular environments alone, defined only in some objective sense, but on transactions that join a person and an environment. Whether or not the transaction serves restoration depends not only on the given environment, but also on what the person brings to the exchange with the environment, including experiences and awareness of other environments (cf. Hartig, 1993).

In this regard, the constrained restoration concept is particularly relevant. As illustrated in the study of cold summer weather and dispensation of antidepressants (Hartig, Catalano, et al., 2007), mentioned earlier, restorative processes may be constrained not only by directly stressful events, but also indirectly, by other, more subtle aspects of the environment that are not of themselves particularly demanding. In a further application of the constrained restoration concept, von Lindern et al. (2013) found that restoration reported to have occurred with forest visits during leisure time was constrained for people who had a profession related to forests. Moreover, their results suggest that this constraint of restoration occurred not because of excess familiarity with forests or a lack of interest in them, but rather because forest professionals found it harder to achieve a sense of psychological distance from their work-related demands. Similar findings have been reported by Collado, Staats, and Sorrel (2016) for children who worked with their parents on a family farm.

Such findings imply that a challenge for measurement is to capture not only the experience of the environment per se, but also the experience of the given environment in relation to other environments. A promising approach in this regard is to consider how the perception of an environment available for restoration differs from the circumstances in which a need for restoration arises. The behavior setting theory initially proposed by Barker (1978) provides useful insights on how to discriminate the environments involved. Behavior setting theory integrates psychological, social, and physical aspects of the environment in accounting for behavior. The theory combines these aspects in synomorphic relations with specific behaviors and social roles (Wicker, 1992), with the combination referred to as a 'behavior setting.' For example, an open-plan office setting will have a number of chairs that have a synomorphic relationship to the behavior of sitting in front of a respective desk, and the positioning and furnishing of desk spaces in the office will reflect on the arrangement of work and the status of different workers in the office hierarchy. In the course of a day, people usually move from one behavior setting to another and in doing so they move between different social roles and perform different behaviors as they engage with the different functions of the settings. The behavior setting approach asserts that every setting has specific characteristics that support or even evoke some behaviors while also discouraging or preventing others (Schoggen, 1989). Different behavior settings may however have common features, involve the same people, support similar behaviors, and in other respects be interdependent. The more interdependence there is between two behavior settings, the harder it becomes to discriminate them (Schoggen, 1989; von Lindern, 2015).

This account of behavior settings and their characteristics encourages consideration of restorative environments as settings with particular social and physical properties that support particular behaviors, and it particularly directs attention to the degree to which behavior settings meant or expected to support restoration are free from interdependencies with settings where stressful demands usually are experienced. When strong interdependencies with demanding settings are experienced while spending time in a setting ordinarily relied on for restoration, the restoration process is likely to be constrained. Common forms of restoration constraining setting interdependency involve the intrusion of work-related circumstances into the settings that people turn to during their leisure time (cf. Hartig, Kylin, et al., 2007). This approach also implies that when a person interacts with completely different objects, has other cognitions, and/or meets people who are primarily not associated with behavior settings in which demands usually are experienced, then the behavior setting will help more to support restoration of resources depleted in other settings.

In an initial test of these notions, von Lindern (2015) found that the more that features of demanding settings overlapped with features of settings available for restoration, the less the participants reported feeling psychologically away and so the poorer their restoration. The results illustrate how an integration of behavior setting theory into restorative environments research contributes to a deeper understanding of restorative processes.

A Theory of Collective Restoration

All of the work reviewed earlier emphasizes the restoration of individual resources. One recent contribution has however considered the environmental circumstances that contribute to renewal of shared resources in a collective process (Hartig, Catalano, Ong, & Syme, 2013). With inputs from environmental psychology, time geography, and social epidemiology, this theory considers how the social regulation of time affects population health by affecting the ability of different people to converge in desired social constellations in settings that in other ways also promote restoration. It refers to the social resources that people provide to one another as a general determinant of health, and it assumes that the availability of social resources is predicated on relational resources. Constituted of shared experiences, mutual trust, mutual regard, and other aspects of the bonds between people, these resources provide a basis for mutually supportive action by the parties to a relationship.

With regard to the antecedent condition, then, the theory assumes that relational resources held among different people can become depleted, and that this can in turn diminish the availability of different forms of social support. Renewal of relational resources and so preservation of the availability of social resources requires that people can enjoy time together free from the demands of paid work and other obligations.

Multiple mechanisms can then work simultaneously; free time can enable people to restore the capacity to provide support to one another, ease restrictions on the provision of support, remove some demands for support, help to maintain relationships that precondition the provision of support, and enable the contagion of positive mood, even among people who do not know one another. When more people can take more time off, there is an increase in the number and variety of the social constellations that can form as well as the number and variety of places that support restoration which are within reach during the time available.

In the initial test of this theory, Hartig et al. (2013) focused on vacation as an example of the social regulation of time for restoration. In contrast to the documentation of health benefits for individuals, research has otherwise not considered the extent to which benefits of vacationing spread among individuals, an ecological effect that could show in population health. The test used data for Sweden, a society with generous annual vacation provisions in which workers can take much of their time off during the summer months. With monthly data for more than 12 years, time-series modeling uncovered negative associations between the number of people on vacation and aggregate dispensation of antidepressants to the Swedish population. The test involved a log-transformed dispensation variable; the decline in dispensation associated with each additional vacationing worker became larger as the number of vacationing workers increased.

As another indicator that benefits spread among people, Hartig et al. (2013) found that the association held for dispensation to men and women of retirement age as well as to men and women of working age. In line with other work in social epidemiology, including the work in the salutogenic tradition initiated by Antonovsky (1979), the results call for attention to the social conditions that determine the access that individuals have to significant resources, such as social resources, which affect multiple disease outcomes through multiple mechanisms (see also Link & Phelan, 1995; Syme, 1967).

Research on Interventions

The last few decades have seen markedly increased practical and scientific interest in a range of approaches to preventing ill health and promoting personal development emanating from research fields like behavioral medicine, clinical psychology, and cognitive neuroscience. Many of these approaches target individuals who experience self-regulatory insufficiencies. It is thought that, through training in relevant skills, these people can enhance their ability to live with the everyday demands that they expect (or are expected) to be able to handle. Such skill-based approaches involve teaching individuals symptom management techniques (e.g., relaxation training; cf. Hazlett-Stevens & Bernstein, 2012), or, in keeping with a salutogenic perspective, help them expand their stress management capabilities (e.g., coping strategies training; cf. Taylor & Stanton, 2007) and strengthen their central self-regulatory faculties (e.g., cognitive training; cf. Rabipour & Raz, 2012). Still other approaches, such as mindfulness training, teach widely applicable skills that serve symptom management as well as the enhancement of self-regulatory capacity and other capabilities needed to manage demanding life circumstances (cf. Brown, Ryan, & Creswell, 2007).

Approaches that emphasize the value of training individuals to better cope with stressful demands commonly neglect the ways in which restorative environments can be used to serve similar goals. In contrast, a variety of approaches informed by restorative environments theory have considered the therapeutic value of natural settings in health care contexts, alone or in combination with a therapeutic regimen.

Examples include rehabilitation gardens for people who suffered from burnout syndrome (Sahlin, Matuszczyk, Ahlborg, & Grahn, 2012) and personal gardens in which breast cancer patients engaged in activities within tailored

programs intended to help them better manage the cognitive resources needed to follow their treatment regimens (Cimprich, 1993). A study on a therapeutic horticulture intervention (Gonzalez, Hartig, Patil, Martinsen, & Kirkevold, 2010) found that change in the severity of symptoms of depression during the course of the 12-week program was mediated by the participants' experiences of fascination and being away, the constructs described in attention restoration theory.

Other work in gardens has synthesized restorative environments theory with mindfulness- and acceptance-based psychotherapeutic methods to facilitate patient insight and psychological flexibility in dealing with stressful demands and ill health (e.g., Corazon, Stigsdotter, Moeller, & Rasmussen, 2012). For additional arguments and examples regarding the use of restorative gardens in health care contexts, see Hartig and Cooper Marcus (2006), Marcus and Barnes (1999), and Stigsdotter et al. (2011).

Touch points between restorative environments theory and mindfulness meditation have stimulated work that integrates skill- and environment-based approaches to health promotion. Kaplan (2001) indicated that meditation practice in a natural environment might facilitate and deepen the meditative state by supporting effortless attention (i.e., fascination), which is also considered to be a characteristic component of mindfulness-type meditation (i.e., detached curiosity; Lau et al., 2006).

In turn, meditation skills may enhance fascination with environmental features and the sense of being away by reducing thoughts of stressors that would otherwise constrain restoration. Outside specific instances of meditation, the skills and the states of mind practiced in meditation may help individuals to minimize resource expenditure in coping with self-regulatory demands and to increase awareness of restoration needs. Mindfulness meditation can thus be understood as one example of learned resistance skills applicable to environmental stress and restoration and to other domains of health-related self-management. Recent research from both the restorative environments and mindfulness meditation perspectives has spoken to the cognitive commonalities of the restorative and meditative experiences (e.g., Aspinall, Mavros, Coyne, & Roe, 2013; Posner, Rothbart, Rueda, & Tang, 2010).

A key issue not addressed by mindfulness meditation and other training-based approaches to stress management is the effort required to acquire necessary skills. Lymeus (2008) observed that, although mindfulness practice can eventually improve attentional control capabilities, practice sessions may initially deplete attentional resources as beginners struggle to learn skills and inhibit mind-wandering.

Because people can experience mindfulness-like states in pleasant natural environments without having to employ the skills or inhibitory effort of meditation, he reasoned that viewing natural scenery may facilitate mindfulness practice. In an initial study of this idea, some participants completed an 8-week mindfulness course while others served as waiting-list controls. Every other week, participants completed attention tests before and after sessions of conventional mindfulness practice, mindfulness practice with nature images, or rest with nature images (controls).

Mindfulness practice did appear to require attentional effort; it hampered performance gains during practice/rest sessions, and attentionally weak participants completed fewer course exercises. Viewing nature images during practice increasingly offset the effort of mindfulness practice across the 8 weeks. Lymeus concluded that bringing skill- and nature-based approaches together offers additional possibilities for understanding and facilitating mindfulness and restorative states (see also Lymeus, Lundgren, & Hartig, under review; for a discussion of related ideas, see Ambrose-Oji, 2013).

Discussion of Implications

The theory and research we have presented so far illustrate the complementarity and potential for integration of the salutogenic and restoration perspectives in health promotion. On the one hand, we have shown how research on restorative environments can augment understanding of salutogenesis. We have called attention to the dynamics of the depletion and renewal of resources needed for maintaining and promoting health, and we have explained how sociophysical environments can play a positive role in people's ongoing efforts to manage diverse adaptive resources. On the other hand, we have shown how research on salutogenesis can augment research on restorative environments. The salutogenic perspective opens for a broader view of the kinds of resources that can become depleted and the different levels on which they are organized and become available. In the following two sections, we elaborate on some implications of these observations for salutogenesis research and practice, with a view to advancing the integration of the two research fields.

Implications for Salutogenesis Research

One important implication of our discussion to this point is that the regular restoration of depleted adaptive resources can contribute to a strong and stable sense of coherence. As considered by Antonovsky (1979), a person's stressors and resources will change over time. For example, during transitional phases, as when leaving the parent's home or becoming a parent, some of the stressors that a person faces may become more intense, new stressors may arise, resources

that previously were available may no longer be at the person's disposal, and other resources may become accessible. Although this account addresses change in the individual's life situation, the emphasis is on transitions between relatively long-lasting life stages. As we have already noted, the significance of daily fluctuations in stressors and resource availability was discounted by Antonovsky.

In contrast, the restoration perspective calls attention to the significance for adaptation over the long term of regular restoration in the short term. In this complementary research tradition, the degree to which people manage to restore their depleted resources on a daily basis allows resources to be understood as more or less stable when considered over weeks, months, or years; however, attention to a finer temporal resolution is required, for example, to distinguish between resources that are persistently low because a person never acquired them versus those that are low because they are seldom adequately restored in the face of persistent demands and coping responses that make poor use of other resources that may be available.

Thus, it is reasonable to ask about the possibility of an antecedent condition of low sense of coherence from which a person can be restored. A person may have a persistently weak sense of coherence for quite different reasons, some of which can be framed in terms of deficits over long periods in more basic, renewable resources on which a sense of coherence may depend.

It follows that a weak sense of coherence may stem from a lack of access to sociophysical environments that support adequate restoration. Therefore, another important implication of our presentation here is that environmental conditions and person–environment transactions can be construed as generalized resistance resources as conceived by Antonovsky (1987), in that they serve the regular restoration that presumably contributes to a strong and stable sense of coherence. A reasonable question then is whether certain kinds of sociophysical environments serve particularly well as generalized resistance resources. As in research on restorative environments more generally, the natural environment may warrant particular attention from salutogenesis researchers in this regard. In addition to serving restoration, nature experiences may also serve a sense of coherence by supporting the acquisition of capabilities that enable people to view circumstances as comprehensible, manageable, and meaningful. Related possibilities have received particular attention from scholars of wildland recreation (cf. Brooks & Williams, 2012; Knopf, 1987).

Similarly, as noted earlier, an extensive body of research has described meanings attached to the "home," such as feelings of security, control, and refuge from the outside world (e.g., Després, 1991; Somerville, 1997), that can figure in restorative experiences and so in a strong and stable

sense of coherence. Also, other sociophysical environments such as work places or educational settings can help people maintain their sense of coherence during difficult times by enhancing manageability, comprehensibility, and meaning; those discussions can be approached with a view to their recognition of restorative functions of person–environment transactions.

Appreciation of the relational character of restorative environments can also be used to advance understanding of how they serve as generalized resistance resources. In this regard, future research can attend to the interdependencies between behavior settings that may serve to constrain restorative processes and so undermine a sense of coherence (cf. von Lindern, 2015; von Lindern et al., 2013).

A related issue has to do with the social regulation of time for restoration, which remains an understudied aspect of restorative environments. Work on this topic will require further integration of knowledge of the mechanisms of individual and collective restoration with knowledge of the ways in which social conditions determine people's spatial–temporal access to opportunities for restoration (Hartig et al., 2013).

As it stands, individual-level research has done little to address the implications that one person's restoration holds for the health of other individuals, their families, and other collectives to which they belong. In geographically dispersed, 24-h economies, many people find it difficult to regularly spend time together, and this may diminish the relational resources they hold in common as well as their possibilities for providing support to one another (Strazdins, Clements, Korda, Broom, & D'Souza, 2006).

Under such circumstances, some people may prioritize the renewal of relational resources and provision of support to others over their personal restoration needs during time available for restoration. Such trade-offs need further study, as do the broader, collective implications of inequalities in the distribution of time for restoration and access to restorative environments (cf. Hartig et al., 2013; Strazdins et al., 2011).

Implications for Salutogenesis Practice

An important practical implication of our discussion to this point is that empowering people to make use of environments for restoration fits with a salutogenic orientation to maintain the generalized resistance resources that enable a strong and stable sense of coherence. Practitioners who work with salutogenesis and those who work in the restorative environments field can consider the distinct yet intertwined roles of dynamic resources and relatively stable ones, respectively, for the health and well-being of individuals and general populations. This multilevel

perspective may serve as a more complete theoretical foundation for work to strengthen people's sense of coherence and their health.

Efforts to integrate skill-based and environment-based approaches to restorative experience can also provide a source of inspiration for salutogenic interventions that help individuals develop skills that can serve as widely applicable resistance resources. Some of those skills may involve enhancing restorative experience in sociophysical environments that ordinarily would be perceived as lacking in restorative quality, for example, through the use of meditation techniques (Lymeus, 2008).

Other skills may target behavior setting interdependencies and involve the disciplined application of techniques such as turning off a mobile phone, closing down e-mail, and removing objects associated with stressful demands from behavior settings used for restoration. By applying such techniques, the behavior setting used for restoration should become a more powerful generalized resistence resource, contributing more to restorative outcomes and thus to a strong and stable sense of coherence.

Results from restorative environments research suggest that salutogenesis research can also frame the protection of natural environments as a positive practical health concern, complementing the traditional pathogenic concerns for preventing the directly harmful effects of pollution and other aspects of environmental degradation (cf. Hartig, Kaiser, & Bowler, 2001). A growing body of evidence affirms that members of urbanized societies generally benefit in terms of health and well-being from accessing relatively natural environments. Thus, protecting nature and providing access to potential restorative environments can be understood as ensuring access to generalized resistance resources, which in turn promote a stronger sense of coherence.

A final form of practical work to mention here involves approaches to addressing inequalities in the distribution of time for restoration and access to restorative contexts (cf. Phelan, Link, & Tehranifar, 2010; Richards, 1999; Strazdins et al., 2011). Policy interventions, for example, might promote collective benefits at different temporal and social scales. For example, recent initiatives in the USA have sought to bring about national legislation that would enable a large proportion of the population to take vacation at about the same time during the summer months, along the lines of legislation currently in place in many other countries (for background, see Ray, Sanes, & Schmitt, 2013).

Challenges for the Future

As discussed earlier, the restorative environments and salutogenesis fields share some basic ideas and goals, and they complement each other in important respects,

theoretically and practically. Both also have their own standing, however, and this entails several challenges. Some of these challenges have already been indicated, as with reconciliation of differences in terminology and foundational literature that reflect on the different disciplinary backgrounds of researchers in the two fields. How resources and resource dynamics should be conceived and weighted appear to us to be particularly significant in this regard.

Other challenges have remained unmentioned thus far. One such challenge is that those working in the two fields may have incompatible practical goals. For example, conserving nature and protecting natural environments are important motives for many working in the restorative environments field, but the protection of nature may disallow activities that could be seen by some as valuable for promoting a sense of coherence, such as the creation of new housing for a growing community. On the whole, however, looking at the integration of the two fields, we see a far greater potential for benefit than for conflict in terms of individual and public health and societal sustainability.

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Gregor J. Jenny, Georg F. Bauer, Hege Forbech Vinje, Katharina Vogt, and Steffen Torp

Introduction

In the early twentieth century, Kurt Lewin questioned the role of work and occupational psychology in view of the increasing division of labor (Taylorism), socialism, and a standpoint of a just society. He noted that one's work and occupation is a two-faced matter: a *means for living* or a *purpose in life*, something *demanding* or equally *fulfilling*. This leaves us with the apparent choice of either *working less and more comfortably* or *making work rich and decent* (1920, pp. 11–12). Referring to this early narrative of the working lives of human beings in modern times, Schallberger (2006) summarized that "the role of work in wellbeing and health can be understood only when we describe work simultaneously as a possible source of negative (e.g., work stress) and positive (e.g., pleasure in work) emotional states" (p. 96).

Both the detrimental and the health-promoting consequences of working processes were also subjects of Antonovsky's writing on salutogenesis and sense of coherence at work (1987a): "A distinction must be made between the elimination of stressors and the development of health-enhancing job characteristics" (p. 165). Viewing stressors as entropic—leading to disorder in humans and social systems—sense of coherence "represents the forces of negative entropy [. . .] preventing initial tension from being transformed into stress" (pp. 156–157). Given his view that sense of coherence is to a large extent static after an individual reaches adulthood, priority should be on young people's working conditions, which is also a reminder of how destructive unemployment is for this cohort. However, also for older workers, sense of coherence "can be modified, detrimentally or beneficially, by the nature of the working environment" (p. 165). Many studies have shown this volatility of sense of coherence and the influences of the work environment on its manifestation (Feldt, Kinnunen, & Mauno, 2000; Togari, Yamazaki, Nakayama, & Shimizu, 2007). Antonovsky elaborated on work characteristics that potentially are related to sense of coherence, offering a dense description of a workplace where individuals experience meaningfulness, manageability, and comprehensibility. This idea has subsequently been picked up by many others (cf. Bringsén, Andersson, Ejlertsson, & Troein, 2012; Hanson, 2007; Idan, Braun-Lewensohn, & Sagy, 2013; Nilsson, Andersson, Ejlertsson, & Troein, 2012; Udris, 2006; Vaandrager & Koelen, 2013).

This chapter presents models, measures, and intervention approaches that relate to the double nature of work and its salutogenic quality. Hereby, the view of Antonovsky is enhanced insofar that health-promoting, salutogenic job characteristics are not solely understood as mitigating the pathogenic effects of stressors at work, but have a distinct effect on positive health outcomes. In the following sections, Antonovsky's original model is first specified and simplified for the context of work. Next, Antonovsky's line of thinking is related to frameworks researching job resources and demands. After a review of the prevalence of salutogenic measures in worksite health promotion, the point of making salutogenesis more visible in work-related research and practice is elaborated. This is illustrated with a practical example of a survey-feedback process promoting salutogenic work.

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General Resistance Resources and Sense of Coherence in the Context of Work

"[...] *the strength of the sense of coherence* [...] *can be modified, detrimentally or beneficially, by the nature of the current working environment*" (1987a, p. 165). Given the fact that most people spend a big part of their waking hours at work, working conditions are important determinants of their sense of coherence and therefore also of a person's, a family's, and even a community's health. In order to be salutogenic, work needs to be comprehensible, manageable, and meaningful: Antonovsky (1987a, p. 157ff.) emphasized consistency, underload–overload balance, and opportunities to participate in decision-making as important life—and work—experiences, supporting the perception of comprehensibility, manageability, and meaningfulness, thus building up the sense of coherence of employees.

Based on Antonovsky's writing on health-promoting factors at work (1987a), his original model of salutogenesis is specified and simplified for the context of work (Fig. 20.1): Job resources are part of the generalized resistance resources that allow for *coherent work experiences*, which help build up the sense of coherence of employees. Sense of coherence then influences the ways in which an individual perceives, appraises, and copes with stressors in working life, or the so-called *job demands*, and the tension they induce. An employee with a high sense of coherence might, for instance, perceive and appraise the demands of his/her work environment as challenging rather than threatening. Furthermore, that employee will feel confident that resources are available to cope with the demands and he/she will also be more likely to select an appropriate coping strategy. Successful coping will determine an individual's position on the health continuum. Experiences of successful coping can also help build up future sense of coherence. Finally, good health is a requirement for building and maintaining generalized resistance resources and job resources, respectively, just as stressors can diminish generalized resistance resources. Such reciprocal mechanisms—depicted as dotted lines in Fig. 20.1—have also found empirical support in research on gain and loss

spirals (cf. Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Salanova, Llorens, & Schaufeli, 2011).

Cultural Context

Working processes emerge within organizations as social systems (Bauer & Jenny, 2012; Jenny & Bauer, 2013), which themselves emerge within and interact with societal, political, ecological, and cultural environments and systems. As elaborated later, Antonovsky demanded "social–historical awareness" (1987a, p. 159) when researching occupational stress and the role of meaning at work. On the one hand, it seems clear that meaning at work will have very different antecedents and connotations between occupational, hierarchical, and regional groups. For example, Western European economies have heavily shifted from production to service-provider industries. Intuitively, one would not tend to study Asian sweatshop laborers and European bank managers with the same concept and identical measures of meaning at work.

On the other hand, local and global structures and cultures are interwoven more strongly than ever, connected through trade, international corporations, transport, travel, and communication. Furthermore, universal human needs, such as autonomy, competence, and belongingness, have been postulated (Deci & Ryan, 1985), which makes a point for defining global criteria for salutogenic work and shared conceptions of meaning at work.

Similarly, sense of coherence has been studied across various cultural backgrounds, also in regard to work. This also matches the generic, psychosocial focus of generalized resistance resources, sense of coherence, and of the perception, appraisal, and coping with stressors. There are global approaches to work and health at the institutional level; the World Health Organization (WHO) has produced a "Declaration on Workers Health" (WHO, 2006), a "Global Plan of Action" for workers' health (WHO, 2007, 2013), and a "Global Framework for Healthy Workplaces" (WHO, 2010). Similarly, the International Labor Organization (ILO) lists youth employment and social security protection

Fig. 20.1 Simplified specification of Antonovsky's original model of salutogenesis for the context of work (1987a)
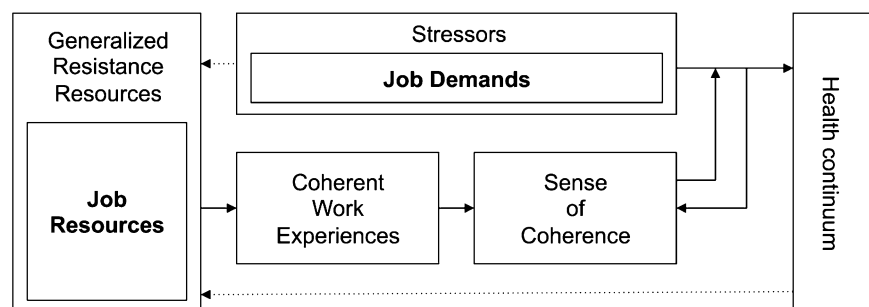
as two global key issues and calls for job creation in general, "[...] as work is the way out of poverty for poor households and...*the expansion of productive and decent employment* [emphasis ours] is the way economies grow and diversify" (ILO, 2014).

Practice Context

There is considerable differentiation among experts with regard to work, safety, and health. Without going into detail, practice taps into the fields of occupational health and safety, occupational medicine, workplace health promotion, human resources management, ergonomics, organizational change and development, coaching, social services, etc. Bridging the logics and approaches of these disciplines is needed to assure that companies and their employees can benefit from this profound knowledge base (Bauer & Hämmig, 2014). Some of these practices stress the importance of building and strengthening resources for employee health, well-being, and productivity, implicitly or explicitly indicating a salutogenic perspective. In regard to workplace health promotion (WHP), for example, the European Network for Workplace Health Promotion (ENWHP) incorporates salutogenic thinking in its Luxembourg Declaration from 1997 (ENWHP, 2005): it postulates *comprehensiveness* as an important principle of WHP and demands that WHP "[...] combines the strategy of risk reduction with the strategy of the *development of protection factors and health potentials* [emphasis ours]." Such resource-oriented capacity-building extends from the individual's personal resources and health to the system(s) he/she interacts with (cf. Hoffmann, Jenny, & Bauer, 2014).

Research on the Role of Sense of Coherence at Work

The aforementioned multitude of experts in the field of work and health are mirrored by a multitude of research disciplines (Bauer & Hämmig, 2014). As the introductory quote by Lewin indicated, psychology has a long tradition in researching work, health, and well-being outcomes, from which among others the subdiscipline of "occupational health psychology" has emerged (Adkins, 1999). Similarly, sociology—the discipline Antonovsky was engaged in—has its stakes in this field of research. Sciences such as occupational medicine and ergonomics have gathered in-depth evidence on the physical side of human beings and their material environments.

Again, some of these disciplines incorporate a—mostly implicit—salutogenic perspective and conduct research on resources and positive health and well-being outcomes

(cf. Bakker & Derks, 2010, on "Positive Occupational Health Psychology"). Hereby, levels of analysis reach from the micro (*occupational health*) and meso (*organizational health*) to the macro (*public health*) levels (Bauer & Hämmig, 2014).

Many studies have empirically explored the effect of sense of coherence in the context of work, testing its direct, moderating, and mediating effects. For example, Albertsen, Nielsen, and Borg (2001) found direct effects of sense of coherence on stress symptoms in a large sample of more than 2000 Danish employees with diverse professional backgrounds. This is in line with previous results by Feldt (1997), who found that sense of coherence was related directly to less psychosomatic symptoms and emotional exhaustion in a sample of nearly 1000 technical designers. She also reported a moderating effect, i.e., that people with a high sense of coherence were better protected from the negative effects of unfavorable working conditions.

A mediating effect was found in a longitudinal study by Feldt et al. (2000), who showed that a good organizational climate and job security strongly correlated with a high sense of coherence, which in turn was associated strongly with well-being. Albertsen et al. (2001) also reported a mediating effect of sense of coherence on the relationship between an unfavorable working environment and symptoms of stress. For a recent list of studies researching sense of coherence with regard to work, we refer to Mayer and Krause (2011) and the chapter by Eriksson in this book. Based on this solid base of evidence, it can be concluded that sense of coherence (a) is *influenced* by various aspects of work and organization, (b) *influences* work-related outcomes, such as burnout and stress symptoms, and (c) *moderates* the effects of unfavorable working conditions on health outcomes.

Job Demands, Control, and Support—A Salutogenic Pathway

The Luxembourg Declaration on Workplace Health Promotion in the European Union (ENWHP, 2005), one of the most important documents giving guidelines on research and practice in workplace health promotion, underlines the need to create work that balances workers' job demands, job control (decision latitude), and support from colleagues and supervisors. This is the main focus of the well-known job demand-control-support (DCS) model by Karasek and Theorell (1990). The model has two main hypotheses. The *strain hypothesis* predicts that jobs with high mental job demands and low control or social support lead to mental strain and thereby mental and physical illness among workers. The second, and much less-investigated, hypothesis is the *active learning hypothesis*. This hypothesis could

be regarded as a *salutogenic pathway* and predicts that high mental job demands in combination with a high degree of control and support will lead to increased learning, motivation, and a feeling of mastery.

This increased learning and feeling of mastery will, according to Karasek and Theorell (1990), inhibit perceptions of work-related strain and associated health problems and will thus mediate the effect of work factors on strain and health. When Karasek and Theorell (1990, p. 101) described the inhibiting effect of learning and mastery on strain and diseases, they actually referred to Antonovsky's (1987b) sense of coherence concept as a related concept that fits with the mastery orientation of the DCS model. Most studies more or less confirm the strain hypothesis of the DCS model (Van der Doef & Maes, 1999), but the proposed mediating effects that learning and mastery may have on the relationships between demands, control and support, and health and disease have almost not been investigated.

A study among a general working population in Norway, Torp, Grimsmo, Hagen, Duran, and Gudbergsson (2013) first investigated whether psychological job demands, personal control, and social support affect the negative health measure of depression differently than the positive measure of work engagement. The study showed that high control and social support were associated with a low score on depression and a high score on engagement. Demands correlated positively with depression but showed no significant association with engagement.

Secondly, the study hypothesized that the positive measure of engagement could have the same effect as the learning and mastery variables in the DCS model and that this variable could mediate the effect of psychosocial work factors on depression. In accordance with other studies (Hallberg & Schaufeli, 2006; Peterson et al., 2008), the results showed that workers reporting high engagement reported fewer symptoms of depression, and the mediation analyses indicated that engagement partially mediated the effects of work control and support on the level of depression. Other studies have shown similar mediation effects on other outcomes, such as organizational commitment (Hakanen, Bakker, & Schaufeli, 2006) and organizational citizen behavior (Saks, 2006).

The Job Demands-Resources (JD-R) Model Viewed Through the Lens of Salutogenesis

The above study applied the DCS model to postulate a salutogenic pathway, where work engagement mediates the direct impact of job control and support on symptoms of depression. The study also showed the direct relationship of job control and support with work engagement as a positive outcome. In this section, the Job Demands-Resources (JD-R) model is used to elaborate this expanded salutogenic effect of job resources on positive health outcomes. The JD-R model—originally a model developed to explain burnout—broadens the DCS model by looking at job resources beyond control and support and particularly by emphasizing the positive pathway between job resources and work engagement.

The JD-R model classifies job characteristics into two categories. *Job resources* are positively valued physical, social, or organizational aspects of the job that are functional in achieving work goals, reducing job demands, or stimulating personal growth and development (Schaufeli & Taris, 2014). *Job demands* are negatively valued physical, social, or organizational aspects of the job that require sustained physical or psychological effort and are therefore associated with certain physiological and psychological costs. Similar to the DCS model, the JD-R model describes two distinct processes (Bakker & Demerouti, 2007): a *positive, motivational process* and a *negative, health-impairing process*.

The health-impairment process explains the exhausting impact of chronic job demands (e.g., work overload or time pressures) on burnout, whereas the motivational process shows how job resources (e.g., social support or autonomy) have a motivating potential and lead to high work engagement. There is much empirical support for these two processes and their impact on burnout and engagement, as well as on organizational outcomes (Van den Broeck, Van Ruysseveldt, Vanbelle, & de Witte, 2013). In addition, the model postulates crosslinks and interactions, where job resources may buffer the health-impairment process (cf. Bakker, Demerouti, & Euwema, 2005) and job demands may influence the motivational process (cf. Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007).

Adding Salutogenesis: The JD-R Health Model

The JD-R model has empirically shown that resources stimulate personal growth and development. Humans draw on resources not only to be resilient with regard to potentially harmful situations and events, but to strengthen their standing in life and work, and to achieve their goals. Research has also shown that work engagement is related to various general well-being outcomes (Hakanen & Schaufeli, 2012; see above too).

Viewing the JD-R model through the lens of salutogenesis, the health-impairment process could be labeled as a "pathogenic path" leading to ill health and the motivational process as a "salutogenic path" leading to positive health (see Fig. 20.2). This dual pathway or analytical perspective has been postulated by the EUHPID model

Fig. 20.2 JD-R Health-SoC
Model (Bauer & Jenny; based on
Brauchli, Jenny, Füllemann, &
Bauer, 2015) (**bold** = original
salutogenic path)
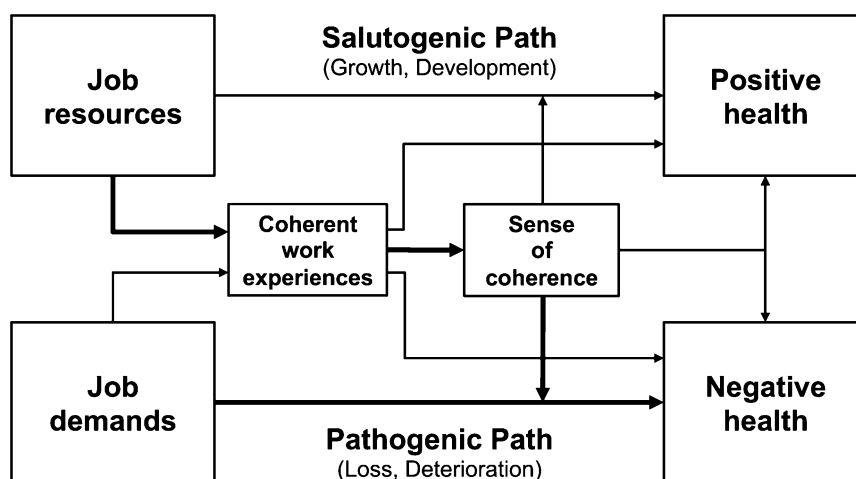
(Bauer, Davies, & Pelikan, 2006), splitting the ease-disease health continuum conceptualized by Antonovsky into two orthogonal factors of positive and negative health. As research on mental health and illness has shown (cf. Keyes, 2007), positive and negative health statuses share common variance, yet can be perceived as two interrelated but independent factors. From this combination of models, first the broader organizational health development (OHD) model (Bauer & Jenny, 2012) and later the JD-R Health Model emerged (Brauchli et al., 2015).

The *pathogenic path* of the JD-R Health Model describes a process in which job demands lead to loss and deterioration, resulting in negative health. *Negative health* is defined in this model as *impaired physical, mental, and social self-reproduction*, an outcome traditionally linked to medical classification systems. Examples are musculoskeletal disorders, anxiety states, depressive moods, and social alienation and exclusion. The *salutogenic path* describes a process in which job resources lead to growth and development and thus to positive health. *Positive health* is defined as *physical, mental, and social self-fulfillment*. Examples are energetic fitness, joy and happiness, and being embedded in harmonious relationships.

The Dynamics of Job Resources

The postulated salutogenic path leading from job resources to positive health requires an understanding of the dynamics of job resources. As discussed above, besides dealing with job demands, job resources are functional in achieving work goals and stimulating personal growth, learning, and development, thus triggering an extrinsic and/or intrinsic motivational process (cf. Schaufeli & Taris, 2014, for a summary and corresponding theories). Further, research has examined gain cycles, showing that job resources not only lead to work engagement over time, but that work engagement also

enhances future job resources (Hakanen et al., 2008; Salanova et al., 2011).

The stability and change of job resources and demands has also been studied, showing that compared to job demands, job resources are more stable (Brauchli, Schaufeli, Jenny, Füllemann, & Bauer, 2013). This could be due to the fact that job demands are often strongly dependent from factors in an organization's environment (such as economic turmoil, market demands, the labor market), whereas job resources are mainly built and stabilized within an organization. Therefore, interventions building job resources may have more sustainable effects than interventions reducing job demands.

The Role of Sense of Coherence in the Salutogenic and Pathogenic Pathways

As suggested by Antonovsky and visualized in Fig. 20.1 for the work context, job resources can, through coherent work experiences and sense of coherence, buffer the effects of job demands on negative health. This path is marked in bold in Fig. 20.2. Research shows that job resources and job demands influence the perception of a coherent work situation (Bauer, Vogt, Inauen, & Jenny, 2015; Vogt, Jenny, & Bauer, 2013; see below), which again may influence the general sense of coherence of employees and therefore their health status.

Research also shows that coherent work experiences partially mediate the relationship between job resources and engagement as indicators of positive health, as well as between job demands and exhaustion as indicators of negative health (Vogt et al., 2013). These results suggest that coherent work experiences seem to play a role in both of the otherwise distinct positive and negative pathways. The mechanisms of influence need to be further explored and tested for differential effects: it could be hypothesized that

How do you personally find your current job and work situation in general?									
1r	manageable	o	o	o	o	o	o	o	unmanageable
2	meaningless	o	o	o	o	o	o	o	meaningful
3r	structured	o	o	o	o	o	o	o	unstructured
4r	easy to influence	o	o	o	o	o	o	o	impossible to influence
5	insignificant	o	o	o	o	o	o	o	significant
6r	clear	o	o	o	o	o	o	o	unclear
7r	controllable	o	o	o	o	o	o	o	uncontrollable
8	unrewarding	o	o	o	o	o	o	o	rewarding
9r	predictable	o	o	o	o	o	o	o	unpredictable

experiencing meaning at work is more relevant for the salutogenic path, whereas experiencing comprehensibility and manageability is more relevant for the pathogenic path.

Finally, as mentioned above, general sense of coherence buffers the effects of job demands on negative health outcomes by influencing the perception of, appraisal of, and coping with job demands. Similarly, sense of coherence could influence the salutogenic path: a first longitudinal study in this regard did not find any moderating effects of sense of coherence on the relationship between job resources and work engagement, but showed that job resources predicted sense of coherence, and that sense of coherence predicted work engagement (Vogt et al., accepted). Furthermore, sense of coherence also predicted job resources, suggesting a reciprocal relationship between job resources and sense of coherence.

Work-SoC: Measuring Coherent Work Experiences

As shown in Figs. 20.1 and 20.2, a coherent work experience is a relevant factor influencing both the general sense of coherence of employees and also their appraisal and handling of job resources and job demands. One way of measuring coherent work experiences was proposed by Bauer and Jenny (2007) with the concept of Work-Related Sense of Coherence (Work-SoC). *Work-SoC is defined as the perceived comprehensibility, manageability, and meaningfulness of an individual's current work situation* (Bauer et al., 2015; Vogt et al., 2013). The conceptualization of Work-SoC assumes that this perception of comprehensibility, manageability, and meaningfulness is influenced by the interaction between individual characteristics and the characteristics of the working environment (Vogt et al., 2013).

"Comprehensibility" describes the extent to which a work situation is perceived as structured, consistent, and clear, "manageability" describes the extent to which an employee perceives that adequate resources are available to cope with the demands in the workplace, and "meaningfulness" describes the extent to which a situation at work is seen as worthy of commitment and involvement. Based on the German edition of Antonovsky's book "Unravelling the Mysteries of Health" (1987b), adjectives were extracted from his description of sense of coherence and matching counterparts were added. This procedure led to a nine-item questionnaire, which has been translated into Norwegian, Swedish, Finnish, French, Italian, and English (see Fig. 20.3), and is also being applied in several ongoing intervention studies.

A first validation study (Bauer et al., 2015), with over 1000 employees from heterogeneous companies, showed that the nine-item questionnaire has a good internal consistency (Cronbach alpha = 0.83) and identified a three-factor structure of the scale with the subdimensions of comprehensibility, manageability, and meaningfulness, with alphas ranging from .72 to .84. A second study using a large dataset of over 3000 employees could show that Work-SoC is influenced by the job resources and job demands of the current work situation (Vogt et al., 2013). The study also showed that Work-SoC acts as a partial mediator of the relationship between job resources and work engagement and between job demands and exhaustion. The nine-item questionnaire of Work-SoC has a good internal consistency (Cronbach alpha = 0.83) (Vogt et al., 2013). Furthermore, multiple group analyses showed that the scale structure is invariant across genders, different age groups, level of education, job position, and time at the job, providing evidence for its robustness. Accordingly, observed changes in Work-SoC, e.g., after interventions, can be attributed to actual changes in the values of Work-

SoC and not to changes in the structure or measurement of the construct. From this it is concluded that the Work-SoC scale can be used as a practical instrument for assessing the salutogenic quality of work and can make it visible in a simple and reliable way.

Self-Tuning: Promoting and Protecting a Meaningful Work-Life

Antonovsky did not dwell on health promotion in different work settings, but left it to future researchers and practitioners to translate his ideas into specific work-life contexts. The concept of self-tuning has evolved from an in-depth, qualitative exploration of the nature of job engagement among thriving Norwegian community health nurses, and investigates how job engagement may be maintained and promoted (Vinje, 2007; Vinje & Mittelmark, 2006). The concept has been further explored among Ugandan nurses (Bakibinga, Vinje, & Mittelmark, 2012) and in the work-life of nurses and other health care workers in municipal health services in Norway (Vinje & Ausland, 2013). Although Antonovsky (1987a) stressed the need for the right load-balance to manage well at work, meaningfulness seems to be the key issue in his argument. This is the case in the above-mentioned research: the concept of "meaning" in and of life seems essential in health care workers' experience of job engagement, and it helps develop the job engagement construct, in which the search for meaning, the experience of meaning, and holding onto meaning has the force of a drive (Vinje, 2007). The self-tuning model of self-care (Fig. 20.4) therefore depicts job engagement as part of a bigger picture

involving two different processes: a salutogenic one and a pathogenic one.

Although "calling" is a highly secular phenomenon for the Norwegian participants in these studies (Vinje, 2007) and a decidedly religious one for the Ugandan participants (Bakibinga et al., 2012), this research reveals that nurses have high levels of ethical standards and a sense of calling as a core aspect in their lives. The ability to listen to and act upon a calling helps an individual prioritize and choose when it comes to work. Thus, the motivational factor in job engagement is a *sense of calling* and the *calling/vocation match*. Research indicates that to promote job engagement, acknowledgment of the importance of values and possible value conflicts between the person, the profession, and the workplace is vital, both before a choice of profession is made and on a continuing basis during one's working life (Vinje & Mittelmark, 2008). The calling/vocation match brought forth from introspection, sensibility, and reflection stimulates job engagement and produces a working situation that for the most part feels deeply gratifying and *meaningful* to the individual, resulting in *zest for work* and *vitality*. A *wish to protect* these experiences of work-related well-being enhances this salutogenic process.

Research demonstrates that job engagement may contribute to exhaustion and burnout, not only health and well-being (Vinje & Mittelmark, 2007). The thriving nurses had experienced stress bringing them close to burnout, yet they had all regained enthusiastic engagement in nursing by the time of participation in the study. The results revealed a pathogenic process in which job engagement played a double-edged role that brought nurses to the brink of burnout. High job engagement (which followed from the nurses'

Fig. 20.4 The self-tuning model of self-care (First published in: Vinje, H.F. & Mittelmark, M.B. (2006). Deflecting the path to burnout among community health nurses: How the effective practice of self-care renews job engagement. The International Journal for Mental Health Promotion. Vol 8 (4), pp 36–47; The model is slightly revised by the authors since this publication.)
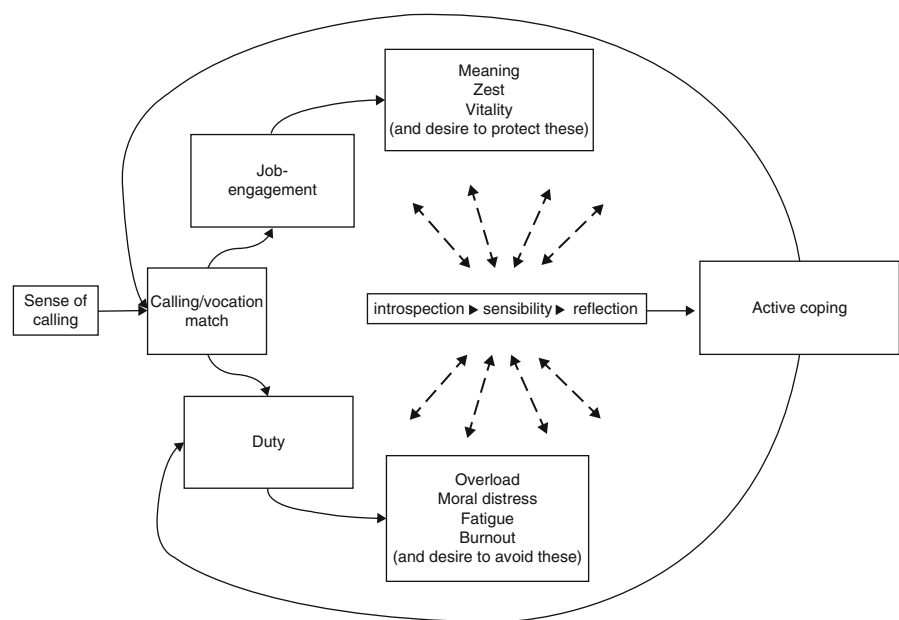
sense of calling and the calling/vocation match) contributed to a strong sense of duty and heavy self-demand regarding their own and others' levels of performance. The need to experience and hold onto meaning tended to overshadow the importance of manageability of one's professional responsibilities. The study indicated that *moral distress*, *overload*, and *fatigue* leading to *near-burnout* may be intensified by a high level of job engagement and frustration about not living up to one's high ethical standards. Thus, job engagement appears to play a paradoxical role in nurse burnout, expressed through a pathogenic process leading to poor functioning, but also to *a desire to avoid* these detrimental experiences (Vinje & Mittelmark, 2007). This brings us to the mediating process in the self-tuning model: the actual self-tuning practice.

Self-tuning is *a sensing/reacting process* with the purpose of finding, protecting, and regaining meaning, zest, and vitality in a person's work-life. Studies from Norway and Uganda show that the actual active coping strategies, such as "striving to be a realistic idealist," "engaging in meaningful activities alongside nursing," "ensuring a place for silence and withdrawn peace," and "solving emotional problems," might differ between the cultures. But the studies demonstrated also that introspection, sensibility, and reflection are independent of setting. Self-tuning is adaptive in that it can result in changes leading to regaining job engagement. The nurses' abiding existential curiosity about the surrounding world and about the self resulted in stimulation of self-monitoring and self-tuning in their search for coherence—a sense of coherence that resonates from their personal values and into the lived expression of them through valued work (Vinje, 2007). Relative constant *introspection* takes place in the form of sensibility. *Sensibility* is a pre-reflective, preverbal ability. It is moments of passive receptiveness of signals from self and others; these are captured, accepted, and made the object of *reflection* regardless of whether they point towards improvement or deterioration (Nortvedt & Grimen, 2004; Vinje & Mittelmark, 2006). To avoid burnout and to enhance job engagement, the nurses worked to lower the too-rigorous standards they had set for themselves and for others (*arrow from active coping to duty*), and/or they changed jobs or modified their working conditions (*arrow from active coping to calling/ vocation match*).

Eagerness to preserve a meaningful working life aligns with Antonovsky's (1987a) advice concerning the probable negative effects on health from frustrated personal potential. He claims that one's skills, abilities, interests, and potential must have a *channel for expression in the given cultural and social setting* one lives in, hence bringing attention to society's influence on the experience of having a valued job. If job engagement and work-related well-being is a goal, one cannot, according to Antonovsky, deal "[...] *objectively with immediate job conditions and subjectively*

with the ways in which those conditions are perceived, with complete disregard for the historical and broader social structure within which the job is embedded" (1987a, p. 159). This underlines the importance of understanding and finding one's place and role in the social and cultural structure with respect to creating meaningful life experiences.

In many ways, it seems safe to claim that the self-tuning process is designed to promote, protect, and enhance a meaningful work-life. In everything participants in the aforementioned studies say about what drives them towards their line of work, it is finding meaning in the sense of being useful and in helping patients and clients find contentment and have a good quality of life, that is most prominent. They are all genuinely concerned and highly committed to their field. High service-quality is of utmost importance and they strive to ensure that the service to patients and clients will be useful (Vinje & Ausland, 2013, p. 895): "[...] *zest for work is being able to give* [...] *being allowed to exist for others*." Antonovsky (1987a) argued that one can draw strength from a truly culturally valued enterprise.

In exploiting the enterprise's meaning, one can find energy to endure difficult working conditions, at least for a period of time. However, he emphasizes that if the organization one invests one's energy in is not historically and socially well regarded, it is likely that the immediate working conditions will overshadow the larger picture. The research presented here broadens this view, as the results demonstrate the importance of a match between personally held, professionally embedded, *and* organizational claimed values in order to experience meaningfulness and a sense of usefulness (Vinje & Ausland, 2013; Vinje & Mittelmark, 2008). If the practice of self-tuning helps in ensuring a match between these three sets of values, one seems to be more robust in the face of societal depreciation.

Teaching practice has informed recent research and illustrates that combining self-tuning individually and in groups in workplaces generates a sense of a broadened scope of action, and thus facilitates active coping for the workers (Vinje & Ausland, 2013). The self-tuning process results in the health care workers expressing work-related well-being characterized both by the feeling and the evaluation of being in a good work situation, as well as the wish to offer their resources to the workplace. The practice of self-tuning may be referred to as "*salutogenic capacity building*," i.e., a competency at the individual and/or group level with the potential to reinforce sense of coherence and promote well-being at work (Vinje & Ausland, 2013). Thus, the assumption is made that self-tuning exemplifies mechanisms needed *to ensure* coherent work experiences and *to translate* them into sense of coherence (see Fig. 20.1). Intervention studies are needed to generate evidence of this causal mechanism.

Pathogenic and Salutogenic Health Measures in the Context of Workplace Health Promotion

Since workers' health is closely related to enterprise and national productivity, work is also important for the living conditions of societies and thereby also for the health of the general population. How work-related health is defined and measured in health and safety practice and research will inevitably affect the focus of health and safety policy at both enterprise and national levels. Mittelmark and Bull (2013) hold that health-promotion practice and research should accept a wide range of both pathogenic and salutogenic health measures. Nevertheless, the salutogenesis research summarized by Eriksson and Lindström (2005) shows that most studies have defined health in a traditional pathogenic way and, to a far lesser extent, have made use of positive health concepts.

In the realm of occupational health, Torp and Vinje (2014) investigated how workplace health-promotion studies defined and measured health. In their scoping review, they included 63 health-promotion intervention research studies performed and published by Nordic researchers from 1986 until 2014. Based on a qualitative content analysis of the studies' descriptions of the used health outcomes, six categories of health-related measures were identified; health behavior, disease and injury, absenteeism, work ability, general health, and positive health. The *health behavior* category included mainly lifestyle measures, such as healthy eating, physical activity, and non-smoking, that is, health-related behaviors that were mostly detached from the core activities of the enterprise (the production of goods and services). The *disease and injury* category included traditional health measures defined as the absence of disease or injury.

Examples are mental disorders, musculoskeletal pain, allergies, psychological strain, and accidents. The *absenteeism* category included general absenteeism, sick leave (prescribed and not prescribed by a physician), and disability retirement. *Work ability* may seem to be a positive health measure, but most studies defined work ability in terms of reduced ability to work because of symptoms related to disease in addition to more positive factors. The *general health* category included, for instance, single-item questions such as "In general, how would you describe your health?" and multi-item measures of health-related quality of life such as the well-known SF-36 instrument (Stewart, Hays, & Ware, 1992). Like the work ability measures, the health-related quality of life indices used questions related both to health problems and to positive indicators of health. The measures included in the *positive health* category were related to well-being or other explicitly positive health conditions such as multi-item measures of self-esteem,

coping, work engagement, and job satisfaction. Except for the measures included in the work ability category, most measures in the other categories were general and not work-related measures of health.

Overall, one can say that approximately three quarters of the measures used in the workplace health-promotion studies were categorized as pathogenic measures (health behavior, disease and injury, and absenteeism), one eighth as salutogenic measures (positive health), and another eighth including both salutogenic and pathogenic aspects (work ability and general health).

These results are similar to results within the field of occupational health psychology in which Schaufeli and Salanova (2007) have documented that publications on negative states, such as depression and anxiety, exceed publications on positive states, such as happiness and life satisfaction, by a ratio of 16:1. Thus, it seems obvious that pathogenic thinking still prevails within psychology and health promotion, and that promoting salutogenic thinking within the realm of occupational health is highly needed.

Making Salutogenesis Visible

Individual-level interventions most commonly strengthen psychosocial resources with regard to appraisal of and coping with job demands, which corresponds with Antonovsky's view of generalized resistance resources and sense of coherence as important factors in dealing with stressors and stressor-induced tension. In line with positive psychology in general (cf. Fredrickson, 2001; Seligman & Csikszentmihalyi, 2000) and positive occupational health psychology (cf. Bakker & Derks, 2010), individual-level interventions strengthen the awareness and competency of proactively building a resourceful environment and applying one's strengths and virtues to enhance positive well-being and health—see for example the self-tuning approach in this chapter (Vinje, 2007), the values in action (VIA) (Harzer & Ruch, 2012; Peterson & Seligman, 2004), job crafting (Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001), psychological capital development (Luthans, Avey, Avolio, Norman, & Combs, 2006), mindfulness training (Hülsheger, Alberts, Feinholdt, & Lang, 2013), and positive psychology at work in general (Bono, Glomb, Shen, Kim, & Koch, 2013; Mills, Fleck, & Kozikowski, 2013).

Such approaches are ideally combined with participatory optimization processes, where teams, units, or entire companies engage in the collective endeavor of reducing job demands and enhancing job resources (Bauer & Jenny, 2013). A core element of both individual and participatory optimization processes is analysis, i.e., a process of measuring, comparing, and—most elementary—of creating

visibility of personal resources, job demands and resources, and health and well-being. Analysis is not only a technical precondition of optimization (Inauen, Jenny, & Bauer, 2012), but the beginning of *a narrative of work and health*, within both the individual and the system. At this point of the intervention, the change agent triggers *the story of salutogenesis, making salutogenesis visible* and *part of communication routines*. Following, an example shows how a survey-feedback process can foster salutogenic thinking in organizations by putting a strong focus on job resources and positive outcomes.

The ARK Intervention Programme: A Salutogenic Focus in Academic Institutions

The work environment and climate survey for higher education institutions, called the ARK Intervention Programme (Undebakke, Innstrand, Anthun, & Christensen, 2015), was initiated by the four largest universities in Norway and was developed in cooperation with the Centre for Health Promotion Research at the Norwegian University of Science and Technology. The aim of the project was to *develop a work environment and climate survey* specifically for employees in higher education institutions and to *promote workplace health by use of survey-feedback processes*. The universities and university colleges in the Nordic countries can use ARK to get necessary support and training (technical, pedagogical, and practical) in conducting the survey and the feedback processes at their own cost.

The institutions taking part must commit to the following issues: (a) the survey-feedback processes should be well anchored in the top and local management levels and in the unions; (b) the institutions must commit to following up on the results and improving the working conditions agreed upon as a result of the survey and other processes at the workplaces; and (c) all of the quantitative data collected by the questionnaire used in the ARK Programme should be collected in the national research database, HUNT (Helseundersøkelsen i Nord-Trøndelag, 2014) and be available for researchers interested in work environment and health promotion in higher education institutions.

The survey-feedback processes were inspired by Bechard's (1969) recommendations on organizational development. They contain five phases: (1) preparation and anchoring (discussions between head of department and safety representatives, preparation and training, information to employees); (2) screening (electronic surveys, feedback of results to management and safety representatives as well as to all employees by trained personnel, group discussions regarding demands and resources, and possible job-condition improvements, with the head of department summarizing and explaining further processes);

(3) development of actions and follow-up (the head of department is responsible for involving employees in developing realistic, concrete, and important interventions); (4) implementation of actions (and follow-up by the management); and (5) evaluation (at every stage through the process). The five phases should be reconducted after 2–3 years.

The questionnaire used in the electronic survey in the screening phase was developed from other validated instruments and was adjusted according to the needs of higher education institutions (Undebakke et al., 2015). It was strongly inspired by the JD-R model (Bakker & Demerouti, 2007) as *all work environment measures are divided into job demands and resources* and as it includes a *particular focus on work engagement* (Schaufeli & Bakker, 2010) and also a *work-related sense of coherence* (Vogt et al., 2013). In feedback meetings, employees are briefed about differences between *positive* (*salutogenic*) *and negative* (*pathogenic*) *health*, and the JD-R model with its two different pathways is important for engagement and well-being and for burnout and disease. This presentation is given before the results of the survey are presented and is meant to encourage employees to discuss the importance of not only risk factors and prevention of disease but also job resources and positive outcomes, such as work engagement and productivity. Thus, the intention of the survey-feedback process is to encourage the employees and the heads of departments to take an active stance on whether they mainly want to prioritize a salutogenic process or a "pathogenic" risk-prevention process.

The ARK Intervention Programme has received considerable interest since it was launched in the summer of 2013, and more than 15 educational institutions with several thousand employees have initiated processes using the approaches developed within it. Preliminary results of participatory observations indicate that the JD-R model is easy to understand and that it fosters fruitful discussions regarding salutogenic working conditions and health among employees in higher education institutions.

Discussion

This chapter has shown that promoting and sustaining salutogenic work will comprise practices at the individual, group, and organizational levels. On the individual level, practices like self-tuning are encouraged to aim at an active and profound involvement with oneself and one's work environment. Such practices focus on personal strengths, resources, values, and calling to one's profession, as well as the skills to experience and reflect upon them. Similarly, collective-level practices in groups or organizations point to the capacity for self-monitoring and self-optimization with a

focus on (job) resources and positive outcomes, supported by corresponding indicators, tools, labels, and methods of change.

From a professional perspective—be it human resource managers, workplace health promoters, occupational health and safety specialists, or consultants, trainers, and coaches— these practices need to gain strategic weight to compete and prevail within corporate politics and routines. Salutogenesis practice faces the challenge of connecting to the logic of management without betraying the ideal and vision of self-fulfilling individuals finding meaning, zest, and vitality at work. From this chapter, the implication can be drawn that the JD-R model has the potential to serve as such a connecting element. Furthermore, self-monitoring tools with an explicit focus on job resources and positive outcomes have been developed on this basis. The concept and scale of Work-SoC could be used to broadly introduce salutogenic thinking and acting to worksites. These individual and collective monitoring, tuning, and optimization practices could be blended into one coherent practice and then be aligned with organizational logic. As boundaries between working life and other life domains increasingly blur, such salutogenic intervention approaches will need to consider the interface between working life and private life in the future.

Research on salutogenic work strives to understand the underlying mechanism of (positive) health development at work. This chapter has reported examples of quantitative and qualitative studies exploring salutogenic pathways at work for both the individual and the collective, and it also reflected on the social context wherein the construction of meaning and value occurs. In general, the JD-R model has proven to be very helpful for corresponding theory development and generating new hypotheses to be tested, particularly regarding positive health development. Some measures have been presented, but it remains clear that the field lacks indicators and instruments for measuring positive health, which might be due to the lack of a concise definition of this phenomena to be measured (cf. Bringsén, Andersson, & Ejlertsson, 2009; Keyes, 2007; Seligman, 2008). Here, researchers face the challenging task of developing a coherent concept of positive health in order to show how work affects it. Similarly, the concept of meaning (at work and in/of life), its relationship to positive health, and its role in health development need to be further detailed through interdisciplinary reviews and both quantitative and qualitative research (cf. Glazer et al., 2014).

The concept of Work-SoC also raises interesting research questions, for example, whether the causal and possibly reciprocal relationship of Work-SoC and general sense of coherence can be empirically demonstrated, and what roles job demands, job resources, and other personal resources play in this process. Intervention and evaluation research

will parallel these developments to further prove causality and to strengthen the evidence-base and arguments for salutogenic practice, as described above. A compilation of current intervention approaches with a salutogenic orientation have been presented by Bauer and Jenny (2013). Finally, research on the work-nonwork interface provides a rich source of models explaining how health develops in relation to different life roles, including working life (cf. Allen, 2012; Geurts & Demerouti, 2003). For now, this large body of research has not been linked with the concept of salutogenesis.

Challenges for the Future

Making work rich and decent—to recapitulate Lewin's words cited at the beginning of this chapter—seems more of an imperative than a choice. The challenge lies in aligning the involved systems with their competing objectives and possibly contradictory logics: the individual as a bio-psycho-social system with a self-preserving and self-enhancing drive, private companies as complex social systems with market-based and resource-oriented strategies, politics as a system of stakeholders and lobbyists with law-making powers, and society in general as an overarching construction transporting shared values and norms for individual and collective sense-making, identity-building, and guidance through a complex world. A salutogenic paradigm with regard to work will have to consider diffusion of innovation techniques on the macro, meso, and micro levels, which inevitably demands the formation of networks and lobbyists.

As an example, researchers involved in organizational health intervention research recently formed the International Network for Sustainable Organizational Interventions (INSOI) to coordinate appearances at conferences and share their findings from research in the field. Such networks might also foster transdisciplinary research, comprising members from the many areas of psychology, sociology, public health, and others (cf. Bauer & Hämmig, 2014), which could lead to a comprehensive concept of salutogenic work. However, the act of defining and measuring salutogenic work means creating a "difference that makes difference" (Bateson, 1972), and it will take considerable effort to defend this difference-making against opposing forces that wish to leave positive health and self-development at work in the realm of unmarked phenomena, thus ensuring that it stays a non-binding and personal issue free from institutional or legislative requirements and consequences.

Finally, as noted in the self-tuning approach and remarked upon by Schallberger (2006), the interplay between the positive and negative paths of health development at work need to be researched, to ensure that positive

health development does not cause unforeseen negative side effects, for example, in the form of biased appraisals and prolonged endurance of excessive overload due to strong experiences of meaning at work.

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Georg F. Bauer and Gregor J. Jenny

Framing the Chapter

This chapter on salutogenic organisations is part of the book section on the application of salutogenesis to everyday settings. The settings covered in this section include communities/neighbourhoods, cities, restorative environments, schools, universities, worksites and prisons. Such settings are broadly defined as 'the place or social context in which people engage in daily activities in which environmental, *organisational*, and personal factors interact to affect health and wellbeing' (WHO, 1998; emphasis added). This definition implies that all settings are influenced by some form of organisation. Several of the listed settings are more or less formalised organisations themselves, such as worksites, schools, universities and prisons—whereas others are at least heavily influenced by organisations, such as cities, neighbourhoods or restorative environments. Thus, understanding how organisations influence whole settings and human health is crucial for promoting health in and through settings.

As the other chapters on everyday settings illustrate, organisations directly influence the health of their employees through working conditions. They influence the health of their customers through their products or services, such as providing education, and finally, they influence the population's health through larger ecological impacts. In treating these health-influencing pathways, the other chapters either refer to the more general concept of settings or focus on specific aspects of organisations such as the employee, customer (student), citizen, political or ecological level. This chapter presents a generic model of how

organisations influence health from both a salutogenic and pathogenic perspective. The framework integrates concepts and empirical findings from health promotion, organisational psychology and the management sciences. The chapter will focus on the organisation's impact on employee health, as employees typically are most directly and intensely affected by an organisation. Thus, it complements the chapter on salutogenic work by expanding the level of analysis to include the question of how employee health is created by the interaction of employees with key characteristics of the organisation.

Furthermore, we expect that organisations considering employee health a legitimate, relevant focus of attention and action beyond pure economic profitability will also consider their larger health impact on their environment, including customers and the population at large. Finally, the chapter aims to be particularly applicable to for-profit organisations in which it is exceptionally challenging to introduce a health agenda.

The chapter firstly introduces the key concept of organisational health development (OHD), as well as the OHD practical and research context, such as ongoing changes of the economy, of organising work and of the roles of managers and employees. Secondly, the chapter presents conceptual and empirical research regarding OHD as well as health-oriented interventions in organisations that at least partly follow the salutogenic orientation. Finally, conclusions are drawn concerning future salutogenic practice and research in organisations.

Key Concepts and Cultural, Practice and Research Contexts

The present chapter relates to the EUHPID Health Development Model (Fig. 21.1; Bauer, Davies, & Pelikan, 2006) as the underlying concept of *individual health development*. This model states that health is continuously developed

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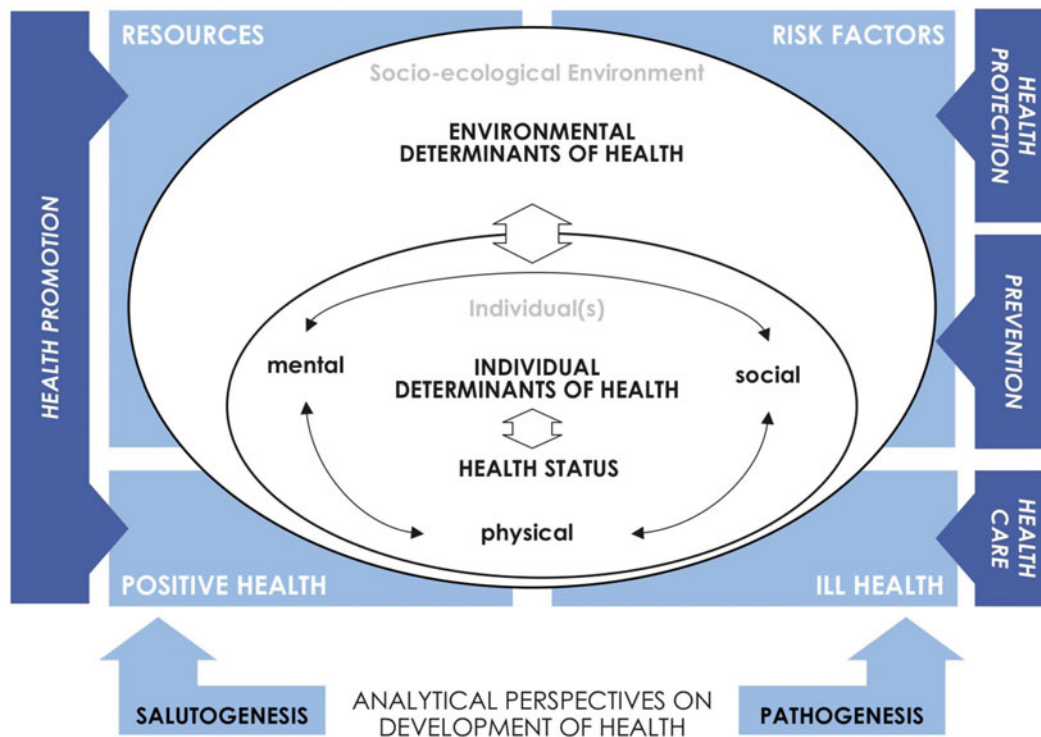
Fig. 21.1 EUHPID health development model (Bauer et al., 2006)

through the interaction between individuals, their individual health determinants and their relevant living environments. This interaction can be characterised from a pathogenic perspective (*risk factors<->ill health*) and a salutogenic perspective (*resources<->positive health*). Following this model, organisations can be considered a key living environment and thus a significant contributor to both pathogenic and salutogenic health development. Accordingly, the chapter on salutogenic work showed that working activities can be split into both pathogenic and salutogenic (health development) processes resulting from interactions between employees and the respective organisation they work for.

Building on this conceptualisation, we previously defined *organisational health development* (*OHD*) as follows (Bauer & Jenny, 2012, p. 135):

Organisational health development (OHD) is both the *ongoing* reproduction and the *targeted* improvement of health in organisations as social systems, based on the interaction (process dimensions) of individual and organisational capacities (structural dimensions).

In short, ongoing OHD relates to all processes within the organisation that have a salutogenic or pathogenic impact on individual health, whereas targeted OHD relates to optimisation processes that are aimed at improving the ongoing reproduction of individual health (Jenny & Bauer, 2013). According to this line of thinking, a healthy organisation can be defined as follows:

A *healthy organisation* is an organisation that is low in producing pathogenic processes, but high in producing salutogenic processes.

In relation to the salutogenic model, a healthy organisation provides an environment that fosters job resources—which can be viewed as general resistance resources—that lead to coherent work experiences, a general sense of coherence and positive health (see the JD-R Health-SoC Model in the chapter on salutogenic work). Similarly, it keeps job demands—or stressors—within an acceptable range and as such reduces the risk of ill health in its employees.

Beyond this human health-centred notion of a healthy organisation, the above definition of a healthy organisation can also be applied to the level of the organisation as a complex social system itself. In this case, producing low pathogenic processes would mean that an organisation is low in organisational-level dysfunctioning, whereas high salutogenic processes would imply that an organisation vitally pursues its organisational purpose.

Societal and Cultural Context

In most contemporary societies, we live and work in highly organised contexts. Throughout our lives, we encounter many different organisations as students, employees,

volunteers, customers or persons exposed to mostly damaging ecological changes created by organisations. Thus, the salutogenic quality of these encounters with organisations becomes an ever more important determinant of population health.

On a societal level, research shows that during working age a large proportion of inequalities in health can be explained by inequalities in working conditions. At the same time, less educated people in lower job positions have limited opportunities to change the job if it is detrimental to their health. Organisations become increasingly globally connected, are under constant economic pressure of global competition and need to continuously adapt to a changing economic environment. This implies that organisations as a relevant working environment become less stable, pushing employees to change jobs, employers or even professions. This leads to weaker psychological contracts and less job security—the latter being a key resource for sense of coherence, according to Antonovsky. This demand for the continuous flexibility of employees is intensified by information technology, which allows additional flexibility of working hours and working places—implying increasing demands for continuous adaptations to new situations.

Not only Western countries have experienced job tasks and thus job characteristics shifting from primarily physical to psychosocial work processes. This implies new forms of 'exposures'. At the same time, physical health and work ability are not sufficient perquisites to fulfil such jobs. Instead, in a knowledge and service-oriented economy, organisations expect their employees to display comprehensive biopsychosocial workability, active work engagement and positive interactions with customers.

These societal and organisational changes meet a changing work force: increasingly well-educated employees demand more and more autonomy, self-defined flexibility, self-fulfilment, opportunities for personal development and a good life domain balance. If these requirements are met, employees are more likely to remain in the job until retirement age—an urgent need in the face of an aging society.

Practice and Research Context

As the two sections of the present book on salutogenesis' application to everyday and healthcare settings show, international health-promotion networks following a whole-systems approach have been mostly created for professional organisations providing public services—including health-promoting schools, universities, prisons, cities and hospitals.

In for-profit organisations, health issues are addressed in more limited ways by legally required minimum standards for occupational safety and health and via worksite health-promotion networks largely focusing on traditional lifestyle-related health issues or focusing on the double aim of workers' individual-level health and productivity. Although approaches such as the NIOSH 'total worker health' or the WHO healthy workplace model (WHO, 2010) aim to promote more integrative, comprehensive OHD approaches, their dissemination is limited because they face fragmented structures of organisations with diverse stakeholders and specialists such as safety specialists, ergonomists, occupational physicians, case managers, occupational psychologists, human resource managers and internal organisational developers—as well as traditional top-down power structures challenging participatory, empowering, employee-centred health-promotion approaches (Bauer & Hämmig, 2014).

At the same time, the societal context described above implies that the stable boundary conditions needed for such static, legally required occupational health and safety systems and for more comprehensive approaches to workers' health are slowly disappearing. One reaction to such unstable organisational environments is that organisations increasingly offer interventions addressing health-related competences and the self-responsibility of individual employees—which meet employees' increasing demand for self-determination at work.

As a complementary strategy, it seems promising to build capacities of organisations as a whole for the continuous self-observation and self-improvement of their health impact on employees. This approach is at the core of the present chapter and is expected to work well in unstable organisations with continuously changing workforce compositions.

From a research perspective, such capacity-building approaches first require a good understanding of the ongoing OHD processes in organisations and what organisations already do for targeted improvements. Related research requires a generic model of OHD to structure the collection of relevant data. In addition, such a model should structure the analysis of complex change processes induced by capacity-building interventions in organisations.

Research

Organisational Health Research Explicitly Related to Salutogenesis

Research on salutogenic health development in organisations has been focusing on the relationships between employee-level working conditions and sense of coherence in employees. This research is summarised in the chapter on salutogenic work and in the chapter on sense of coherence in this volume. In contrast, little conceptual and empirical

research has examined broader, organisational-level factors in the context of salutogenesis. Some research at least addresses specific aspects of organisations in relation to salutogenesis or selected elements of the salutogenic model in relation to organisations.

Antonovsky himself assumed that the type of an organisation influences the degree of recognition an employee receives and the meaningfulness of his/her job (Antonovsky, 1987a). Feldt, Kinnunen, and Mauno (2000) showed that a good organisational climate and working for an organisation providing job security were strongly correlated with a high SoC, which in turn was associated with well-being. Two studies found correlations between various leadership dimensions (e.g. organisational climate, supervisory support and teamwork), cultural beliefs and sense of coherence (Cilliers & Kossuth, 2002; Kossuth & Cilliers, 2002). Graeser (2011) developed an organisation-based sense of coherence scale 'to identify potential salutogenic factors of a university as an organization and work place'. Building on Antonovsky's development of a family sense of coherence (Antonovsky & Sourani, 1988), she proposed a setting- or group-based sense of coherence conceptualised as the 'interaction and transaction between the individual and the setting (e.g. family, community, organization, school, university, workplaces, etc.)' (Graeser, 2011, p. 509). Following the dimensions of the general sense of coherence, the university sense of coherence scale assesses how far a university as a whole is perceived as comprehensible, manageable and meaningful. Cross-sectional analyses showed significant correlations with various disease symptoms in two university samples (Graeser, 2011).

Broader Research on Organisational Health

Beyond this explicit salutogenic perspective, there exists much research on occupational and organisational health that considers organisational-level determinants of health. During recent decades, this research has increasingly shifted away from a pathogenic focus on stressors, stress, disorders and dysfunctioning. Following a general trend towards positive psychology (Seligman & Csikszentmihalyi, 2000), job- and organisational-level resources and positive (health) outcomes are considered. Such literature includes publications on positive occupational health psychology focusing on the employee level, positive organisational behaviour linking individual, short-term, state-like outcomes to organisational factors and positive organisational scholarship emphasising organisational, longer-term outcomes (Bakker & Derks, 2010; Bakker & Schaufeli, 2008;

Cameron, Dutton, & Quinn, 2003; Day & Randell, 2014; Gilbert & Kelloway, 2014; Luthans & Church, 2002; Nelson & Cooper, 2008).

This positive perspective has been considered to be part of a larger movement towards positive aspects including fields like positive psychology, community psychology, organisational development, appreciative inquiry, pro-social and citizenship behaviour as well as corporate social responsibility as 'other traditions with a focus on positive phenomena' (Cameron et al., 2003, p. 7). This list also exemplifies that the positive turn is accompanied by a trend to look beyond individual-level health resources by including a broad range of social and organisational determinants of health (see also Bennett, Cook, & Pelletier, 2002; Hofmann & Tetrick, 2003). Interestingly, this shift corresponds to Antonovsky's much earlier (1979, 1979, 1987b) concern to look beyond individual risk factors by addressing overarching general resistance resources on any level, from the individual to the society at large.

In the search for a comprehensive model covering both pathogenic and salutogenic health development processes within the organisational context, we previously conducted a broad review of the conceptual literature covering the field of organisational health (development) (Bauer & Jenny, 2012). We had structured this review into three aspects that are summarised here.

Organisational Health 'Outcomes'

Based on 16 different earlier definitions of organisational health, Hofmann and Tetrick (2003) developed a two-dimensional integrative framework, distinguishing short- vs. long-term health outcomes, as well as intrinsic vs. extrinsic health goals. Referring to the literature of positive organisational behaviour and scholarship, Quick, Macik-Frey, and Cooper (2007) introduce three superordinate categories of organisational health: leading a life of purpose, quality connections to others, positive self-regard and mastery. Based on this human-based conceptualisation, they suggest that an organisation itself can contribute to broader societal goals than pure effectiveness and economic performance. Similarly, sustainability (Hofmann & Tetrick, 2003) or corporate social responsibility (Zwetsloot, Leka, & Jain, 2008) are suggested as broader organisational health outcomes. Jaffe (1995) proposes that a company can be healthy for its own livelihood, its stockholders, employees, suppliers, customers, the community and its ecological environment.

Organisational Health 'Determinants'

On-the-job role clarification, balance between job demands and resources, social relationships and support as well as dealing with change have been identified as key determinants of individual (Bond, Flaxman, & Loivette, 2006) and organisational health (Kerr, McHugh, & McCrory, 2009). Hart and Cooper (2001) as well as Cotton and Hart (2003) identify the organisational climate to be defined as 'leadership and managerial practices, as well as the organisational structure and processes...' (Cotton & Hart, 2003, p. 122) as key determinants of OHD. Others propose positive leadership (Luthans & Church, 2002; Peiró & Rodríguez, 2008; Quick et al., 2007) or positive organisational culture and climate (Shoaf, Genaidy, Karwowski, & Huang, 2004) as key factors. The integrative AMIGO model (Peiró, 2000; Peiró & Rodríguez, 2008) distinguishes hard (e.g. structure and technology) and soft facets of the organisation (e.g. climate and management) as well as core elements (e.g. mission, strategy and culture). The NHS (2009) review suggests interrelation, identity, autonomy and resilience as key components of organisational health (see also the Psychologically Healthy Workplace framework, Kelloway & Day, 2005).

Relationships and Balance in Organisational Health: Organisations as Social Systems

Several authors move beyond a linear determinant-outcome logic by considering organisations social, interactive systems (Bennett et al., 2002; DeJoy & Wilson, 2003; Grawitch, Gottschalk, & Munz, 2006; NHS, 2009; Peiró & Rodríguez, 2008) where interactions, reciprocal relationships and self-referential downward and upward spirals (Fredrickson, 2003; Fredrickson & Dutton, 2008) are key for organisational health. Grawitch et al. (2006) propose the 'Practices for the Achievement of Total Health (PATH)' model. This triangular model summarises the commonplace idea in the organisational health literature (cf. Hart & Cooper, 2001) that organisational health interventions simultaneously lead to both employee well-being and organisational improvement and that these two outcomes also reinforce each other (see also the HERO model, Salanova, Llorens, Cifre, & Martinez, 2012). Besides this idea of harmonious mutual benefits or win–win situations between individual-level and organisational-level health, several authors acknowledge possible tensions between intrinsic (employee-oriented) and extrinsic (company-oriented or societal) health-related interests. Hofmann and Tetrick (2003) propose the joint optimisation of competing goals by applying a balanced scorecard (Kaplan & Norton,

1996) as a 'strategic-level model for organisational health' (p. 18).

In regard to a salutogenic perspective on organisational health, the review showed two models implicitly incorporating both pathogenesis and salutogenesis: Both the organisational health framework (Cotton & Hart, 2003; Hart & Cooper, 2001) and the job-demands/resource model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) distinguish two parallel axes of health development in organisations compatible with the general health development model: demands leading to strain/distress and resources leading to motivation/morale. Both models also assume cross-cutting relationships, as resources can buffer the demand–strain relationship, whereas demands can impede the positive impact of resources on motivation. The models agree that these relationships are influenced by personal and organisational factors and that the two parallel axes co-produce (organisational) performance as an outcome important to organisations. The organisational health framework explicitly depicts personal and organisational resources in the model itself and introduces reciprocal relationships to government, shareholders, customers and partners as relevant stakeholders in the organisational environment. Compared to the general health development model (Bauer et al., 2006), both these models emphasise mental health over physical and social health. In addition, as descriptive models, they do not cover self-improvement processes and entry points for interventions.

The Organisational Health Development (OHD) Model

In order to add the management perspective to OHD, we completed the above review on organisational health (Bauer & Jenny, 2012) with a review of the literature on generic models of organisations, organisational change and management systems (Jenny & Bauer, 2013). This resulted in the OHD model (Fig. 21.1), which integrates the generic health development model introduced above (Bauer et al., 2006) with the new management model of St. Gallen (Rüegg-Stürm, 2003). The latter combines structuration theory (Giddens, 1984), a systemic viewpoint (Luhmann, 1984) and organisational ethics (Maak & Ulrich, 2007). The OHD model (Fig. 21.2) shows how organisational capacities (structure, strategy and culture) interact with individual capacities (competence, motivation and identity). This interaction is composed of factual, task-related processes (business, management and supporting) and social, people-related processes (leadership, relations and discourse) between managers, employees and customers.

Fig. 21.2 Organisational health development (OHD) model (Bauer & Jenny, 2012; Jenny & Bauer, 2013)
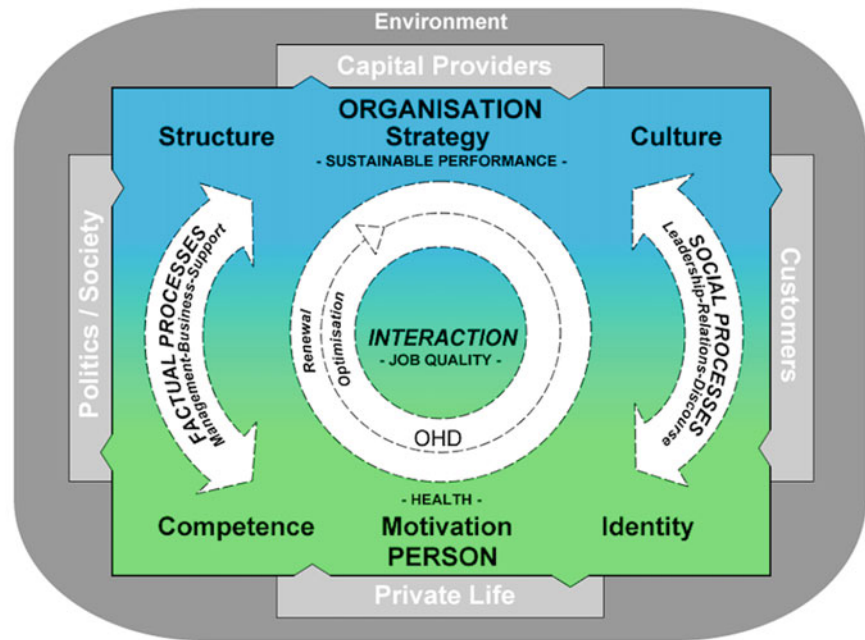
The model assumes that these processes are influenced by and simultaneously shape individual and organisational capacities—comparable to the reciprocal relationship between a river and its riverbed. The thick black line around the organisation symbolises the system's self-referentiality, that is the self-defined borders as well as the language and mental models represented within and guiding the organisation (Jenny & Bauer, 2013). The model highlights customers, society, financers and the private lives of its members as health-relevant environments of the organisation. Following the logic of a balanced scorecard, the interests of the stakeholders in these environments need to be balanced with the interests of the organisation and of its members.

As an organisation-specific health development model considering organisations to be complex social systems, this model incorporates the following points emerging from the various literature reviews and definitions (Bauer & Jenny, 2012, pp. 133–134):

- Pre-defined, unidirectional distinctions between determinants and outcomes of OHD are replaced by reciprocal relationships between structural and process dimensions.
- These processes, which reflect multiple interactions between the organisation and its members, are classified into both factual (task-related) and social (people-related) processes.
- Targeted OHD needs to balance tensions between the various structural and process dimensions and between the interests of stakeholders.

- To facilitate the self-optimisation process by organisations, targeted OHD should build on mental models and the language of decision-makers and staff in organisations.
- Both ongoing and targeted OHD is dependent on the organisational environment comprising various stakeholders, from customers to politicians.

The OHD model may provide a common group action theory for both researchers and practitioners in this area, facilitating the development of a well-structured, cumulative evidence base and supporting evidence-based practice. As editors of a recent book on 'salutogenic organisations and change' (Bauer & Jenny, 2013b), we compared this detailed model to other propositions of OHD of the broad international group of researchers involved in the book. We concluded that a simplified generic OHD framework can mirror the diverse approaches (Fig. 21.3) (Bauer & Jenny, 2013a).

This framework shows how employees and leaders with their specific roles interact with organisations as a whole and with sub-groups within the organisation. Sub-groups like teams or divisions are considered to be more immediate and thus particularly relevant social environments. Therefore, they provide identity and feasible, meaningful units of change. Again, (factual) work processes are distinguished from social processes. As most researchers in the mentioned volume make a distinction between negative and positive health development processes, this framework splits the work-related and social processes up into health-impairing, pathogenic and health-enhancing, salutogenic processes.

Fig. 21.3 Generic organisational health framework (Bauer & Jenny, 2013a)

Finally, the framework shows that OHD is influenced by and influences its relevant environment.

Linking Ongoing OHD to the Salutogenic Model

The organisational health development model permits a well-structured, theory-based application of the salutogenic model to the context of OHD. Firstly, in the context of organisations, individual-level generalized resistance resources are specified as the individual capacities of work-related competences, motivation and identity. Organisational-level generalized resistance resources can be specified as capacities within the structure, strategy and culture of the organisation. Secondly, these individual- and organisational-level capacities co-produce the factual, task-related processes and social processes in an organisation. As shown in detail in the chapter on salutogenic work, these processes can impose job demands or job resources on employees. Referring to the salutogenic model, job demands constitute work-related stressors employees have to cope with, whereas job resources constitute work-related generalized resistance resources.

Further following the salutogenic model, high generalized resistance resources on the individual, work or organisational level, as well as successful activation of the general sense of coherence for coping with high job demands, all contribute to coherent work experiences, which in turn strengthens the general sense of coherence.

The coherent work experience can be either perceived and measured on the individual level, as suggested by the Work-SOC (Vogt, Jenny, & Bauer, 2013; for details, see the chapter on salutogenic work), or on the collective level, as suggested by Graeser's University-SOC (2011).

Interventions for Improving OHD

After understanding how health develops within the organisational context on an everyday basis, the question arises how this ongoing health development can be positively influenced by targeted interventions—driven by the organisation itself or by external organisational health specialists. The international literature reveals many practices for improving OHD and groups them into diverse, inductively derived categories (see Bauer & Jenny, 2012): 'healthy workplace practices' addressing work-life balance, employee growth and development and employee involvement (Grawitch et al., 2006); 'approaches to organizational health' covering individual health promotion, job redesign and autonomous work groups (Shoaf et al., 2004); 'practitioner models' like health and productivity management, healthy culture planning and the healthy company (Bennett et al., 2002); 'leadership development' (Peiró & Rodríguez, 2008; Quick et al., 2007) or 'self-assessment/adaptability' (Bennett et al., 2002, p. 72).

Previously, we proposed mapping practices for targeted OHD in a pyramid (Fig. 21.4). This pyramid communicates that the further up an OHD practice is depicted, a smaller
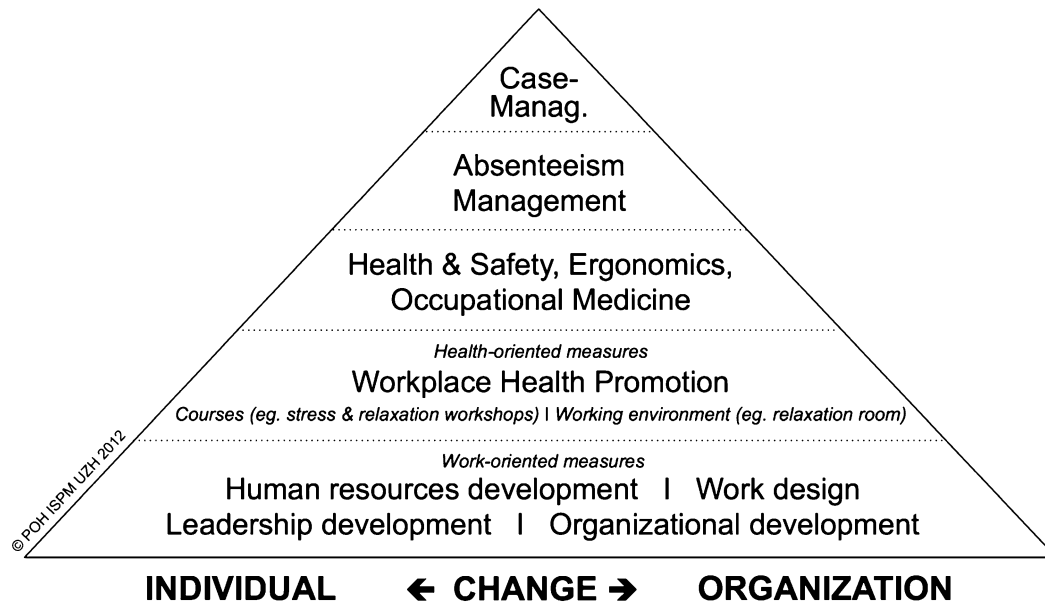
Fig. 21.4 Targeted OHD practices (Bauer et al., 2014)

proportion of employees benefit from it. At the top, only a very few employees with long-term absenteeism benefit from case-management systems to promote re-integration at work. The few employees with repeated events of absenteeism during a certain period of time obtain support from absenteeism programmes, analysing and potentially reducing reasons for repeated absences. Employees at particularly hazardous workplaces benefit from health and safety measures as well as from regular exams by occupational physicians. Worksite health-promotion programmes mostly address lifestyle-related issues at the workplace—but only reach parts of the employees who are interested in such issues. The bottom of the pyramid refers to work-oriented measures aiming to improve the working conditions that affect all employees every day. Furthermore, the pyramid communicates that, for each OHD practice, changes can be induced on the individual or organisational level. This pyramid has shown to be useful to map current practices in organisations and to reflect which level would be most beneficial for future OHD (see Bauer, Lehmann, Blum-Rüegg, & Jenny, 2014).

Intervention Approaches: From Fidelity to Figuration

To better compare diverse intervention approaches to improve OHD, we propose categorising OHD interventions in reference to approaches distinguished in the field of human resource management (see Bauer & Jenny, 2013a; Delery & Doty, 1996; Grawitch et al., 2006):

- The *universalistic approach*: Practices that are effective regardless of the setting to which they are applied
- The *contingency approach*: The effectiveness of an organisational practice is dependent on its consistency with other organisational components such as structure and strategy
- The *configurational approach*: The total system of organisational practices needs to be improved to achieve a profound impact

These deductively defined categories distinguish different types of relationships between an intervention and the organisation in which it is implemented. We apply these three approaches to OHD interventions as follows (see Table 21.1):

Universalistic OHD

The focus of a universalistic OHD intervention is the intervention itself; it aims to assure the fidelity of its own implementation and the reaching of expected outcomes. The intervention context (the organisation) is selected so that the intervention can be implemented with least possible interference. The content of the intervention and the planned implementation process—that is when to implement what intervention element in which way with whom—are predefined and standardised. The research objective is to produce evidence of the static implementation's effectiveness, whereas the change process—as it is (seemingly) predictable—is of minor interest.

Table 21.1 Intervention characteristics specified for key approaches to OHD interventions (from Bauer & Jenny, 2013a, with minor adaptations)

Intervention characteristics[b]	Organisational health intervention approaches[a]		
	A. Universalistic	B. Contingency	C. Configurational
Focus	*Fidelity* of the intervention	*Fit* between intervention and organisation	*Figuration* of the organisation
Content	Predefined	Predefined or modified	Emergent
Context	Relevant for selection and targeting	Relevant for tailoring/fitting	Relevant as co-actor of change
Implementation process	Standardised	Tailored/fitted	Co-created
Change process	Issue-specific individual + group learning	Multi-level learning through a participatory problem-solving cycle	Capacity building for ongoing health improvements + increased legitimacy of health
Outcome	Predefined	Predefined or modified	Predefined (health capacities) + emergent
Research	Effect of static implementation	Process + effect of dynamic implementation	Process + effect of interactive capacity-building process

[a]Terminology of *universalistic*, *contingency* and *configurational* based on Delery and Doty (1996)
[b]Terminology based on Fridrich et al. (2015); see also Biron and Karanika-Murray (2015)

Contingency OHD

The focus of a contingent OHD intervention is the desired fit between a partly predefined intervention and organisations in need of this intervention. The planned implementation process includes tailoring and fitting the intervention content and process to some degree to the context of the specific organisation—in order to increase its acceptance and effectiveness. This is usually done at the project start together with top decision-makers, subsequently with the operative project managers and then during participatory workshops with line managers and employees. This dynamic implementation process needs to be researched accordingly in order to understand under which conditions intervention outcomes can be achieved through multilevel (organisational) learning mechanisms.

Configurational OHD

The focus of a configurational OHD intervention is the organisational 'figure' itself, that is the system's configuration in terms of individual and organisational capacities that influence its members' health. The organisational context is not a mere boundary condition promoting or hindering the intervention, but the key target and the key actor of change. Thus, the content and process of the intervention will only emerge from this context and be co-created and owned by the organisation itself. As the external change agent increasingly builds the capacity of the organisation for continuous self-improvement, he/she will be less and less involved. Research will focus on this process of capacity building and on its effect on the organisation's ability to go through similar optimisation processes in the future.

A recent compilation of (salutogenic) OHD interventions (Bauer & Jenny, 2013b) showed that practices following a contingency approach are most prevalent in the field. The one-size-fits-all approach has been widely criticised and largely overcome with adaptive intervention designs applying variations of participatory problem-solving cycles (cf. Henning & Reeves, 2013; Ipsen & Andersen, 2013; Nielsen, Stage, Abildgaard, & Brauer, 2013). These interventions emphasise the need for aligning (von Thiele Schwarz & Hasson, 2013) or fitting (Randall & Nielsen, 2012) the intervention to the respective organisation where it is implemented. This approach has even been applied to the employee survey used for initial problem analysis by tailoring it to each organisational context (Nielsen, Abildgaard, & Daniels, 2014). Such non-standardised interventions generate challenges for their evaluation, as both the process and context need to be thoroughly evaluated to understand under what circumstances the interventions are effective for what sub-groups (see also Karanika-Murray & Biron, 2013). Although capacity building for future problem solving is not the primary aim of interventions following a contingency approach, evaluations should still assess the degree of capacity building achieved to consider the potential for long-term, sustainable intervention effects.

Targeted Organisational Health Development as Configurational Capacity Building

Declarations on (workplace) health promotion and health development advocate empowering and sustainable approaches (European Network for Workplace Health Promotion, 1997; WHO, 1986), which can be considered configurational approaches. As shown above, we apply the concept of 'capacity building' as such a configurational

approach to enhance an organisation's health-oriented self-optimisation, or in other words, its targeted OHD (see Bauer et al., 2014, and Hoffmann, Jenny, & Bauer, 2014, for details).

Based on the organisational capacities (structure, strategy and culture) and employees' capacities (competence, motivation and identity) as the organisation's initial configuration, external change agents develop an intervention architecture together with internal project managers. This intervention architecture defines which intervention elements such as surveys or workshops are implemented with whom in which sequential order. The architecture also considers previous experience and routines with (health-oriented) optimisation processes in the organisation. As line managers are seen as key change agents in organisations, they typically take part in a workshop where they learn to see and talk about OHD from their perspective and within the logic of their organisation. They self-experience how to improve the salutogenic and pathogenic qualities of their own factual and social processes and are empowered to work with their team on these issues. In team workshops following the format of a solution-oriented 'future workshop', line managers and their teams engage in a discussion about reducing their job demands and increasing their job resources. Participants in these workshops create lists of measures that are targeted at the individual, leader, group/team or organisational levels. Finally, in refresher sessions, the implementation progress is monitored, and the participants reflect upon their experiences.

OHD Research Model

Integral to this capacity-building process is a schematic version of the OHD model (see Fig. 21.5), which was originally developed for research purposes (Bauer & Jenny, 2012; Jenny et al., 2011, 2014) but has also proven to be more comprehensible to practitioners and organisations. Compared to the OHD model with the reciprocal relationships shown above (Fig. 21.2), it introduces a more linear depiction of the relationships between organisational and individual capacities that jointly produces job demands and job resources, leading to positive/negative health and finally to sustainable performance as intermediary and distal outcomes. Furthermore, it shows at the very left-hand side the more small-scale interventions for optimisation or the more profound interventions for deep renewal as the initial input targeting both the capacities and the job demands/resources.

During interventions, this model serves as a common mind map and group action theory for all stakeholders, generating a common language, compatible perspectives and mutual action. Moreover, it supports systemic, multi-level thinking, enabling company members to see their blind spots, facilitates the formulation of hypotheses on how the organisation impacts their health and raises awareness about the circularity of and the interaction between the organisation and its individual members. At the beginning of intervention projects, the model is used to sensitise management to the multiple levels of ongoing and targeted OHD.

Fig. 21.5 OHD research model (based on Bauer & Jenny, 2012)
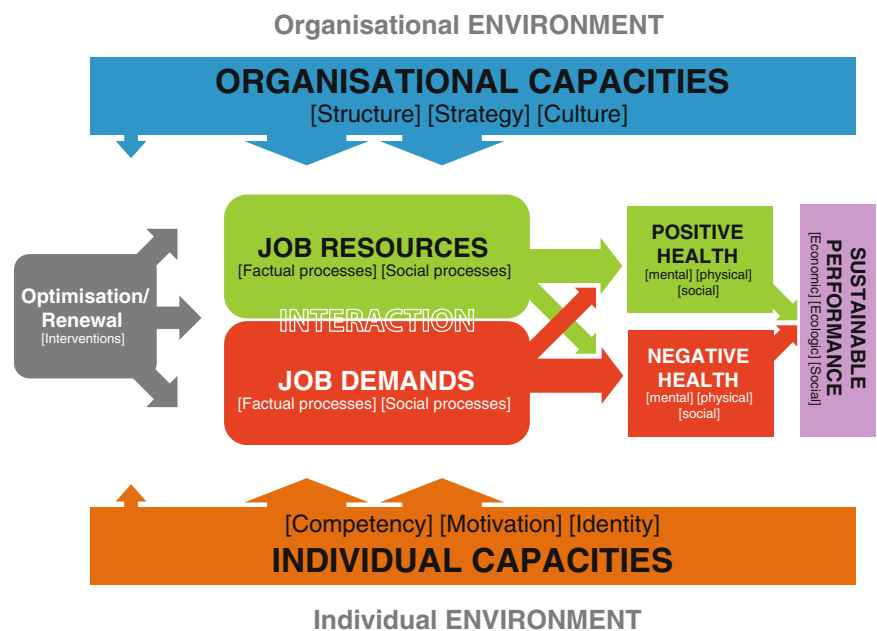
During the project, it is used to map developed measures for improving OHD in regard to their primary target: organisational or individual capacities, or factual (task-related) or social processes.

This approach to targeted OHD has been developed in close collaboration with OHD consultants in the field and applied to targeted OHD processes in medium-sized and large companies from the production, healthcare and broader service sectors (See Bauer et al., 2014). In the research context, the model has also been applied as an evaluation framework in a large-scale stress management intervention study to structure and condense data from both quantitative and qualitative sources (Jenny et al., 2014). Hereby, it also figured for the step-wise, causal narration of the final evaluation report (Jenny et al., 2011) and structural equation modelling in regard to the core JD-R-Health model (Brauchli, Jenny, Füllemann, & Bauer, 2015; see also the chapter on salutogenic work).

Linking Targeted OHD to the Salutogenic Model

Last not least, the OHD research model can be used to relate interventions for targeted OHD to the model of salutogenesis. As the model shows interventions for optimisation/renewal can either focus on individual or organisational capacities—or capacity-related generalized resistance resources in salutogenic terms. Alternatively, interventions can directly target job demands and job resources as work-related stressors and work-related generalized resistance resources. Both approaches are expected to contribute to a coherent work experience through a better balance between job demands (work-related stressors) and job resources (work-related GRR).

Additionally, the capacity-building approach described above implies increased OHD-related decision making and self-determined actions by employees as key actors of targeted OHD. Antonovsky considered involvement in decision making to be a key source of sense of coherence. In addition, using the OHD model during the intervention as a common frame of reference in the involved organisations increases the likelihood that the intervention itself is perceived as more comprehensible, manageable and meaningful—and thus more coherent by the members of the organisation.

Discussion

Considering sense of coherence to be the core of the salutogenic model, the design and implementation of interventions for targeted OHD inherently should aim to be perceived as coherent. As shown above, building on a shared mind map of organisational health like the OHD model and participatory approaches involving employees and leaders in improving OHD in their organisation are useful toward this end.

Regarding generalized resistance resources, both individual-level and organisation-level capacities should be built up. These two levels imply a shared responsibility for improving OHD in organisations. However, in practice, this shared responsibility is challenged by an increasingly flexible working society where employees only spend limited time in a single organisation due to flexible work arrangements and repeated changes of employers. Thus, besides enabling organisations to promote the health of a continuously changing workforce, employees need to be enabled to develop individual strategies for improving their work experience. This is exemplified by the numerous individual-level programmes for better coping with or pro-active job crafting of their own work experience.

Furthermore, the salutogenic orientation implies a move beyond disease prevention towards strengthening job resources and the promotion of positive health experiences related to work. This positive focus requires the development of organisation-related indicators of positive health and performance that are attractive to both employees and often economically driven power holders in organisations. Promising ways to obtain the buy-in of organisations might be linking the promotion of positive health to the broader corporate agendas of sustainable workability and the engagement of an aging workforce, of being perceived as an attractive employer as well as the desire to show social responsibility and sustainability.

Specifying the general health development model for the specific living environment of organisations helps to study simultaneously both pathogenic and salutogenic health development processes in this context. Such a model-driven approach allows the classification of generalized resistance resources on the one hand into individual- and organisational-level capacities—that can be assumed to be more stable generalized resistance resources—and on the other hand into factual and social job resources related to work processes—that are expected to be more dynamic generalized resistance resources. This clear classification system allows the systematic study of the relative influence of both types of GRR on work-related sense of coherence, general sense of coherence as well as negative and positive health outcomes.

Regarding intervention research, the classification of interventions into universalistic, contingency and configurational approaches allows the distinguishing of different roles of organisations as the context of interventions and guides to formulate key research questions regarding the intervention characteristics specific to the respective approaches.

From a salutogenic perspective, it further seems promising to assess the perceived comprehensibility, manageability and meaningfulness of implemented interventions as an immediately salutogenic process indicator. Regarding outcome research, the OHD research model suggests the conducting of a step-wise analysis from changes in job demands and job resources to changes in negative and positive health outcomes, finally leading to changing performance. Moreover, the model suggests the assessment of changes of individual and organisational capacities as indicators of more figurational and thus sustainable changes.

Field research regarding capacity building for targeted OHD in organisations as complex systems will require study designs 'fit for purpose' (Cox, Karanika, Griffiths, & Houdmont, 2007), for example by retrospectively assigning employees to intervention and control groups based on the analysis of who could be reached by an organisation-wide intervention or based on their assessment of the intervention's impact (Jenny et al., 2014; Randall, Griffiths, & Cox, 2005). In addition, it could be advisable to focus such intervention research on teams as smaller, more feasible sub-units of analysis and change in organisations (Ipsen, Poulsen, & Jenny, 2015). In both cases, a mixed-methods approach will allow researchers to systematically collect and analyse the context, process and outcomes of such comprehensive interventions (Biron & Karanika-Murray, 2014; Fridrich, Jenny, & Bauer, 2015).

Challenges for the Future

The greatest challenge ahead will be to reflect upon and redefine the role of organisations in society. Currently, there is a broad consensus that organisations—particularly for-profit corporations—are independent, hardly regulated entities that have the primary purpose of generating profits and that are little accountable to society at large. As societies provide stable environments and pre-conditions for the thriving of organisations, they can demand that organisations directly contribute to the larger aims of society and their members. The concepts of healthy organisations and OHD would require that organisations regularly assess and improve both pathogenic and salutogenic processes for the benefit of their members and their larger environment.

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Introduction

The chapter addresses the health of children and young people in the school setting with a special focus on experiences from Health Promoting Schools (HPS) and selected health promotion projects in schools. On the basis of brief definitions of the salutogenic orientation and the health promoting school model, comparisons will be conducted with regard to key concepts and principles of the two approaches to children's health.

A brief literature overview on the use of salutogenic concepts in relation to schools and health promoting schools is presented and discussed. One focus of interest is to compare the usage of salutogenic concepts to the usage of overlapping concepts, such as self-efficacy, resilience and health literacy, and to briefly explore the distribution of the use of salutogenic concepts in the different European countries. Next, the main findings indicating links between schools and young people's sense of coherence are presented.

A number of projects using the HPS approach are described as examples of major interventions in the field and the evidence on health and behavioural outcomes is summarized. The focus is on models and components with a clear overlap to the salutogenic orientation.

The main conclusion is that the salutogenic orientation has the potential to enlighten and stimulate the HPS development with an overall philosophy, and that intervention studies based on the HPS approach have the potential to enrich the intervention dimension of a salutogenic approach in schools. The chapter ends with recommendations for the further development of the salutogenic orientation viewed from a school health promotion perspective. Overall key conclusions from the chapter include:

- The key concepts of salutogenesis are not explicitly used in the field of HPS although a number of concepts are closely related to the salutogenic orientation, such as empowerment, action competence, democracy, equity, participation and multidimensional notion of health.
- HPS and health promotion projects in schools will benefit from a more coherent and systematic theoretical and philosophical basis—and salutogenesis has a potential to fill out parts of this gap.
- Findings and observations from the field of school health promotion have the potential to improve and strengthen the intervention and practice base of salutogenesis in relation to the school setting.

Salutogenesis and the Sense of Coherence

In this section, we briefly present how salutogenesis and the salutogenic orientation might be used as an umbrella and as a philosophical underpinning of the HPS movement. First, we introduce our understanding of the salutogenic orientation within the context of health promoting schools. Next, we present the relevant key concepts for HPS, including the whole school approach to health, a multidimensional health concept and participation and democracy as basic principles for a health promoting school.

In this chapter, we understand salutogenesis as an overarching *theory*, leading to a salutogenic *orientation*. Key to this is the concept sense of coherence, which is an

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"orientation to life", helping the person to live and cope with life and facilitating the development of the person toward health. According to Antonovsky (1987, 1996), the salutogenic orientation can be described by the following three components:

1. To focus on all people in the system (and not only on people at risk)
2. To address and promote 'salutary' factors (and not only remove risks)
3. To focus on the whole person (and not only on a specific disease)

Further, Antonovsky (1987) defined the core notion of sense of coherence by the following three dimensions:

1. Meaningfulness: a belief that things in life are interesting, motivating and a source of satisfaction (motivational).
2. Comprehensibility: a belief that the challenge is understood and that you can understand events in your life (cognitive).
3. Manageability: a belief that resources to act are available and that things are manageable and within your control (behavioural).

Finally, these components and dimensions are united in the concept of generalized resistance resources, which are all the resources that help a person (or a collective) to avoid or tackle a range of psychosocial stressors.

During the presentation of the scope and context of HPS, we draw on—and refer to—these key concepts and dimensions of salutogenesis when relevant.

A Health Promoting School

In this section, we use the overall definition of a Health Promoting School (HPS) that was used in the recent Cochrane review (Langford et al., 2014). According to this review, a HPS embraces the following three areas:

1. *Formal health curriculum*: Health education topics are given specific time allocation within the formal school curriculum in order to help students develop the knowledge, attitudes, skills and competencies needed for healthy choices.
2. *Ethos and environment of the school*: Health and well-being of students and staff are promoted through the 'hidden' or 'informal' curriculum, which encompasses the values and attitudes promoted within the school, and the physical and social environment and setting of the school.

3. *Engagement with families or communities or both*: Schools seek to engage with families, outside agencies and the wider community in recognition of the importance of these other spheres of influence on children's attitudes and behaviours.

In addition to this, the Cochrane review also presents a so-called logic model—or a programme theory (Pawson & Tilley, 1997)—to illustrate the mechanisms for how a HPS might influence health and educational outcomes (Fig. 22.1).

Health promotion in a school setting is a broad and innovative concept that is rooted in the Ottawa Charter (WHO, 1986). The principles and action areas in the Ottawa Charter such as building healthy policy, creating supportive environments and empowerment of individuals, relate clearly to the salutogenic orientation (Eriksson & Lindström, 2008).

Based on these principles, there is a clear distinction between HPS and the more traditional health education in schools, which is mainly focused on presenting health knowledge (often exclusively related to risk factors) to pupils. A HPS is based on a so-called *Whole School Approach* where health education and teaching are combined with development of school policies, the physical and social school environment and the surrounding community, including parents and health services. Furthermore, the focus is on promoting health rather than preventing a specific disease.

This approach combines a commitment to improving the health and well-being of children and young people and to making schools a better place to learn and work. Furthermore, it also encompasses the health and well-being of school staff. Therefore, health promotion in schools needs to be linked to the core task of a school (which is education) and to its inherent values, such as inclusion, democracy, participation and influence, critical health literacy and action competence in relation to health.

A HPS approach demands an intersectoral strategy. The "Odense statement", resulting from the 4th European conference on health promoting schools, calls for strengthening links between the education and health sector and all stakeholders (http://school-forhealth.ru/upload/The%20Odense%20Statement.pdf). Furthermore, it focuses on taking a lead in school development and school improvement through a health promoting school approach.

Similarly, the Global School Health Statement from the first "Global School Health Symposium" in Pattaya in 2013 calls for a dialogue to better understand education, and more specifically, that the health sector seeks integration within the educational system (http://www.wholechildeducation.org/about/globalschoolhealthstatement). The statement also recommends focusing on the growth and development of the

Inputs

Resources:
School resources (staff time, training and materials, physical space)

Input from local communities, and parents/families

Stakeholders:
Other school staff (e.g. catering staff, learning support assistants, school nurses etc.)

School governors

Parents/guardians

Local community organisations/ groups

Outside agencies involved in delivering intervention

Policy context:
Global policies:
WHO HPS framework
FRESH framework
Ottawa Charter

Country-specific policies:
e.g. Healthy Schools in UK, Comprehensive School Health Education in USA

Specific school policies:

Intervention

intervention

Interventions must include activity under all three areas:

1. Curriculum
- Focused on health and wellbeing topics
- Defined units of education actively taught to students
- Taught during classtime

2. School environment/ethos
Activities might include:
- Changes to physical infrastructure (e.g. improving playground facilities)
- Implementing health-related policies
- Changes to school catering services
- Increased opportunities for physical activity etc

3. Links with families and/or communities
Activities might include:
- Newsletters to parents
- Family homework assignments
- Invitations to local community organisations to be guest speakers
- Inclusion of parents/community members on school health forums

Participants

School students

School staff

Parents

Outputs

Mediators

Individual level changes in:
- Knowledge
- Attitudes
- Skills development
- Self-efficacy
- Social Norms

School level changes in:
- School -wide norms
- School policies
- Physical environment
- Staff and student practices/behaviours
- Access to healthy food
- Opportunities for physical activity
- Access to alcohol, tobacco and other drugs

Family/Community level changes in:
- Family norms, connectedness, communication, monitoring
- Community norms
- Decreased access to alcohol/tobacco/other drugs,
- Increased access to healthy food, opportunities for physical activity and health services

Outcomes

Health behaviours

↑ Physical activity levels

↑ Healthy diet

↓ Tobacco/alcohol/substance use

↓ Risky sexual behaviours

↑ Positive social interactions

↓ Bullying/violence/aggressive behaviours

↑ Hygiene

↑ Road safety/Seat-belt wearing/Cycle helmet use

↑ Use of sunscreen/sunhats

Educational behaviours

↑ Concentration/attentiveness

↓ Disruptive behaviours

↑ Engagement with school

Health outcomes

↑ Physical fitness

↓ CVD/diabetes risk factors e.g. high BP, cholesterol etc

↓ Overweight/obesity

↓ Eating disorders

↓ Morbidity/premature mortality related to substance use

↓ Sexually Transmitted Infections

↓ Teenage pregnancy

↑ Mental health and emotional wellbeing

↓ Infectious diseases

↑ Oral health

↓ Accidents/injuries

↓ Skin cancer

Educational outcomes

↑ Academic performance

↓ Absenteeism

↓ Exclusions/suspensions/expulsions

Socio-demographic and environmental factors such as: social capital, social inequity; individual-. household- or area-level deprivation, housing conditions; gender; ethnicity; country and cultural context

Fig. 22.1 Logic model for impact of HPS on health and learning outcomes

whole child rather than directing attention and resources only toward specific diseases or behaviours. Disease intervention is of course important but needs to be embedded in an overall health and development, or salutogenic framework, refocusing attention on a setting-based approach.

Finally, the Health 2020 policy that was adopted in 2012 by all WHO European member states declares that integrative policies should be developed that engage all sectors in our societies in addressing the determinants of health. Health 2020 also puts a strong emphasis on reducing health inequalities. Children from poorer backgrounds are more likely to experience poor parenting, receive inadequate support in schools and health services, live in hazardous environments and live shorter and less healthy lives as adults. Education policies and schools can help address these inequalities. The WHO EURO H2020 sectoral brief on 'education and early development' (2014) states very clearly how education can make a difference in health. Creating better synergy between health and education sectors implies improving education outcomes to create healthy adults.

On the basis of the concepts and models presented, it is obvious that a HPS approach is closely linked to salutogenesis and its core dimensions. Focus is on the whole school community, the whole child and improving children's competencies and skills to act to promote their health. The values and principles will be further discussed under the description of the European Health Promoting School initiative later in this chapter making the links to the salutogenic orientation even more explicit.

Salutogenesis and Schools

This section summarizes the literature on salutogenesis and schools—independent of health promotion interventions. In the first part, we present a brief overview on how frequent the salutogenic concepts have been used in the literature related to schools and health promoting schools. Among other things we compare it with the use of overlapping concepts (such as self-efficacy, resilience, etc.) and we also explore the distribution of salutogenic concepts in the different European

countries and various disciplines. Further, we introduce the main findings indicating links between schools and young people's sense of coherence. Although there is only limited research exploring the links between salutogenesis and the application of HPS approaches we present and discuss the findings from these studies.

Lindström and Eriksson (2010) define salutogenesis as an 'umbrella concept', underneath which concepts and theories gather that contribute to our understanding of how health is maintained, strengthened or set at risk. Salutogenesis, therefore, does not only relate to the explicit measurement and the application of sense of coherence, but is a much broader framework, touching on concepts like 'empowerment', 'self-efficacy', 'quality of life', 'resilience', 'well-being', 'action competence' and a number of other concepts. While it is universally agreed that all those constructs relate to salutogenic dimensions and make valuable contributions in describing, explaining, analyzing and promoting health, some researchers also claim that Antonovsky's salutogenic theory is still the best explored and with the broadest evidence base (e.g. Lindström, 2010).

In an often cited quote Antonovsky argues that sense of coherence would build up from experiences in childhood and adolescence and would first gain stability in early adulthood or as he puts it:

> The adolescent, at the very best can only have gained a tentative strong sense of coherence, which may be useful for short-range prediction about coping with stressors and health status (Antonovsky, 1987, p. 107).

The notion of sense of coherence as a result of the developmental process during childhood and adolescence indicates that the concept basically is seen as an outcome of individual life experiences, learning processes and environmental influences and not primarily as a resource and determinant of positive health. Clearly, any developmental stage of sense of coherence that a child has reached can also be seen as a resource for coping with the challenges that the child is facing at this stage. But it seems that the time factor in the case of developmental processes is not trivial, since both—the child and the child specific environment—change simultaneously over a period of 20 years and more. Therefore, the level of sense of coherence reached at any time may inevitably lack behind the levels of experienced challenges, as long as the developmental process has not come to a certain point of preliminary optimum.

The mechanisms described in salutogenesis to translate growing challenges into a growing sense of coherence, although with a time lag and only under the condition of coping success, are the generalized action and resistance resources. As they grow and convey positive coping experiences, children develop a generalized feeling of comprehensibility and manageability of demands, and a sense of

meaningfulness regarding life as such and the mastering of challenges. Seen from this perspective, childhood and adolescence are seen as crucial life phases, crucial for the development of the personal sense of coherence optimum and the individual health biography.

This is the point where Health Promoting Schools could re-orient its services. If sense of coherence really is the basic mental fundament that supports all other life skills, then HPS and education as a whole should primarily provide opportunities for acquiring generalized resistance resources. This is slightly different from the current orientation towards well-being that many HPS schools have declared to be their guiding philosophy.

It must be mentioned that there is still some ambiguity regarding the stability of sense of coherence over time in young as well as among adult populations. Currently, there are only a few longitudinal studies that indicate such stability. However, the methodologies and results of these studies are subject to a number of limitations such as the selection of target populations, the definition of follow-up periods, the use of different sense of coherence-questionnaires and the fact that most of these studies have been conducted in Scandinavian countries.

To get an idea about the popularity of salutogenesis in the literature on schools and HPS we conducted a brief literature search in the Scopus database (in November 2014) looking for studies that prominently focus on sense of coherence and salutogenesis. For the purpose of comparison, we selected five additional popular concepts from the 'salutogenic umbrella' (Lindström & Eriksson, 2010): 'well-being', 'quality of life', 'resilience', 'health literacy' and 'self-efficacy'.

The search was conducted as a simple title search of all the above mentioned terms (and commonly known synonyms) in combination with the following keywords: 'school', 'student', 'teacher' and 'education', which operationalized the relevant context for our purpose. Studies with more than one keyword in the title were counted for each; hence, the numbers cannot be added up. We do not claim completeness for our research strategy, but argue that the restriction to the title is a valid indicator for the use of the concepts in the actual study.

From Fig. 22.2 it can be concluded that generally sense of coherence is rarely used in studies related to the school setting. Only 90 publications were identified with sense of coherence in the title, but 1.764 for self-efficacy, 1.135 for well-being, 708 for quality of life and 423 for resilience. More than half of the sense of coherence publications explicitly deal with the health of students, only three publications were directed to the health of teachers. A huge amount of publications investigates the relation between sense of coherence and the school or education in a broader sense.

Fig. 22.2 Number of studies that use sense of coherence, well-being, self-efficacy, resilience and health literacy in a school setting (student, teacher, school and education). Studies are counted for each keyword
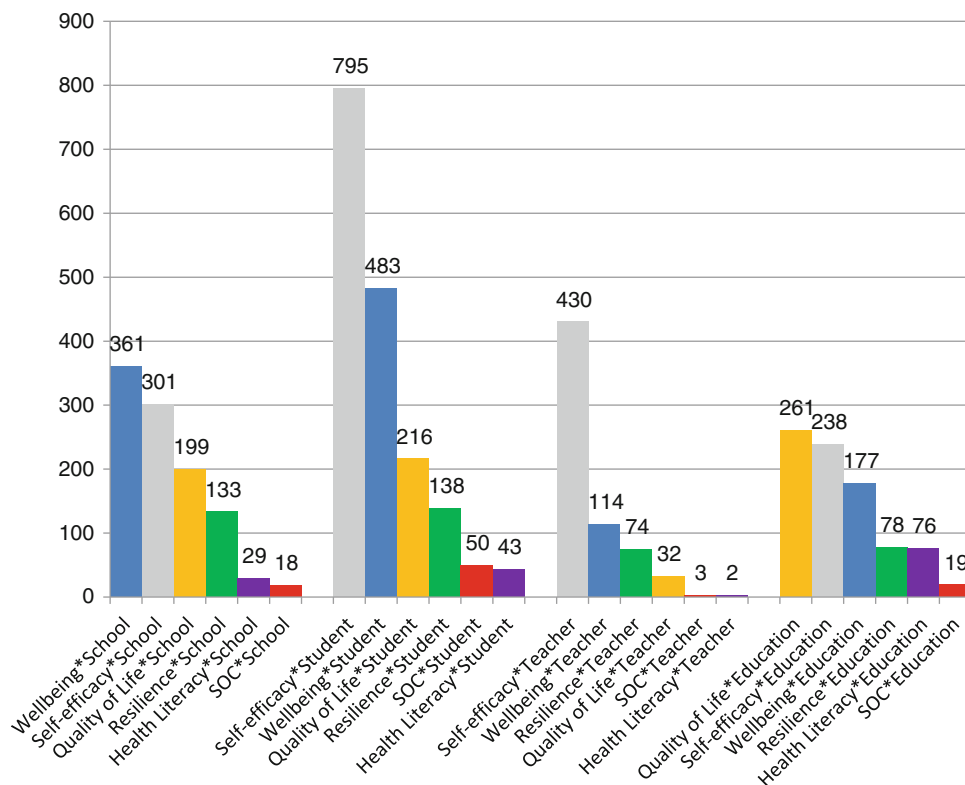
That might as well include publications with a focus on students' and/or teachers' health.

An analysis of the scientific disciplines that deal with sense of coherence in these studies also revealed that the role of the concept is much less important in social science studies than in medicine or psychology. For sense of coherence, we found that most of these studies have a medical (32 %) or psychological (26 %) focus and less frequently a focus related to the sociological area (15 %). On the other hand, the term well-being is most often used in sociological studies (34 %) and to a lesser extent in medicine (27 %) and psychology (24 %). This seems to indicate that, although Antonovsky was a medical sociologist, the SAL/SOC concept is mainly interpreted and used within the individualistic paradigm.

Furthermore, a cross-country comparison indicates that the concept is well adopted in Scandinavian countries, but only peripheral in Anglo-Saxon research. Twenty-five percent of the sense of coherence publications stem from Scandinavian countries and another 13 % from Antonovsky's 'homeland' Israel. The others is dispersed over many countries, each contributing only between 1 and 3 publications. As a contrast, nearly 50 % of publications on the notion of 'well-being' were from Anglo-Saxon countries.

The results confirm the hypothesis that salutogenic concepts and language are relatively seldom used in relation to the school context. First of all, based on Antonovsky's conceptualization of sense of coherence as a developmental outcome in the phases of childhood and adolescence, it makes sense to use it in psychological, medical and, particularly, in psychiatric studies that aim at understanding processes of individual development.

Secondly, the use of sense of coherence as an outcome variable in social science studies aiming at understanding for instance the impact of the school setting on health seems to depend on certain prerequisites. To a certain degree this is more likely in countries, where the education system is seen and used as the main investment area for the country's future. In these countries, the system's outcomes, therefore, are measured and valued by a broad range of indicators, including self and social competencies, and the education and the health sector work in close cooperation. This is the case for example in countries in Scandinavia, where the history and use of salutogenesis has been relatively strong.

Relations Between School, Sense of Coherence and Young People's Health

In this section, we summarize the limited amount of studies that have analyzed relations between school, sense of coherence and health among children and adolescents. Some studies treat sense of coherence as a determinant (an independent variable), whereas other studies look at sense of coherence as an outcome of for example educational interventions (dependent variable).

Most studies that investigate the relation between adolescence and sense of coherence do not look at specific life experiences of children and adolescents, be it in the family, in the school or in leisure activities. They use the generalized resistance resources in the phase of adolescence as causal determinants for the development of sense of coherence in adulthood. Antonovsky (1987, 1996) defines generalized resistance resources as the biological, material and psychosocial conditions of an individual in its inner and outer environment, for example the health status, cognitive abilities, level of parental support, parents education level and parental socioeconomic status.

Feldt, Kokko, Kinnunen, and Pulkkinen (2005) investigated child-centred parenting, parental socioeconomic status, school success in adolescence and career orientation in adulthood as determinants of adult SOC. They gathered data at ages 14, 27, 36 and 42 and found that only parental child-centredness and career orientation have a direct, as well as an indirect (via education and stability of career line), relationship with adult sense of coherence (Feldt et al., 2005, p. 305). As for the stability of sense of coherence in adulthood, Hakanen, Feldt, and Leskinen (2007, p. 612) found that the stability of sense of coherence after the age of 30 depended strongly on its level, meaning that higher levels are more likely to be stable, and that the starting level of sense of coherence depends on generalized resistance resources in adolescence.

Both studies demonstrate that adolescence and the family as bundles of generalized resistance resources are highly relevant for the development of the sense of coherence, and this seems to be true even more for early adolescence up to age 15 than for later phases. Hokinen et al. (2008) investigated the stability of sense of coherence during adolescence and found that the change in sense of coherence between the age of 15 and 18 years was not significant (Hokinen et al., 2008, p. 89). This suggests that the development of sense of coherence is driven stronger before the age of 15, than afterwards, and also—contrary to assumptions made in the theory—that the stability of sense of coherence did not depend on its initial level.

García-Moya, Rivera, and Moreno (2013) analyzed data from the international HBSC study (Health Behaviour among School-aged Children), a cross-national questionnaire survey conducted every 4 years in 44 countries and regions across Europe and North America (Currie et al., 2010), and showed that a supportive school environment (classmate and teacher support) was directly linked to the level of SOC. School-related stress and sense of coherence also showed a strong correlation, but the direction stayed unclear since the study used self-report data. By relating to the model of Salutogenesis, García-Moya et al. solved the problem in two directions: they interpret sense of coherence as an outcome of a supportive school environment and as a determinant in relation to the experience of stress. They concluded that:

> a supportive school environment also tended to reduce the likelihood of perceiving school demands as stressful, not only by reinforcing sense of coherence, but also through a direct effect on the perception of school-related stress.

In this view, sense of coherence is seen as an internal mediator of internal effects from external environmental factors (negative ones like demands and positive ones like support) by amplifying the positives. Nevertheless, sense of coherence, in particular the components comprehensibility and manageability, and the concept of adaptation in stress theory are so close, that their mutual relation and direction of causes are difficult to solve on the basis of self-reported data.

Also on the basis of HBSC-data, Torsheim, Aaroe, and Wold (2001) found a strong increase in perceived stress between the grades 5 and 9, but only a slight increase in sense of coherence at the same ages. They also use sense of coherence as a determinant and argue that, in the course of the school career, the academic demands increase faster and more threatening implying that adolescents are not able to fully develop an 'adolescent' sense of coherence at the same pace. The experience of stress might therefore be viewed as a result of a time lag in the development of SOC. In other words, according to Torsheim et al. (2001), the development of sense of coherence cannot keep up with the various challenges and demands an adolescent is facing in the course of growing up.

To summarize, studies with a developmental psychology approach tend to use sense of coherence as an outcome of developmental processes, but predominantly look into the family as the primarily relevant setting for children and adolescents. Studies in the area of the school setting, on the other hand, tend to use sense of coherence as a determinant and therefore fail to investigate the school as a highly relevant social system for the development of a strong, protective SOC.

Therefore, the scarce research results do not allow for a final conclusion of the role of sense of coherence in childhood and adolescence. This is where we see the most urgent need for research; intervention studies in the school setting that are able to clarify pathways leading to high or low sense of coherence levels, and that provide indications and guidelines for changes in the school setting in order to optimize the development of students' SOC. The national and international networks of HPS provide perfect platforms for natural experiments for this purpose.

Health Promoting Schools and a Salutogenic Orientation

As stated in section "Salutogenesis and the Sense of Coherence" on key concepts there are many similarities between the HPS approach and the salutogenic orientation. In this section, a few major interventions related to the HPS approach are presented and discussed with a specific focus on the salutogenic orientation.

The European Network of Health Promoting Schools, now called the Schools for Health in Europe (SHE) network, is structured around its 45 member states in the European region (http://www.schools-for-health.eu). In 2013, a survey was conducted among the national coordinators of the SHE network in Europe to gain an overview of current health promoting school policies in the then 43 member countries. Nearly two in three countries (62 %) have a formal health promoting school policy, in most cases as part of their education policies, followed by inclusion in their public health policies, or a combination of education and health policies.

Based on the 2013 survey, a minimum of 34,000 schools in the European region are registered as health promoting schools. These include preschools, primary schools, secondary schools and other school types. It must be kept in mind that the diversity of the different education systems among countries in the European region is huge. There are differences in starting age and programme duration, different models for compulsory education, educational standards and goals; and also each country has its own standards and indicators for being a health promoting school. Despite this diversity, all SHE member countries share principles and core values concerning health promoting schools.

SHE has had a strong link to research, which among others has led to the development of new concepts and models of health promotion in schools—concepts, which are closely related to the salutogenic orientation.

In the SHE network a 'health promoting school' is defined as "*a school that implements a structured and systematic plan for the health and well-being of all pupils and of teaching and non-teaching staff*". This is characterized as a 'whole school approach' which consists of the following six components:

- Healthy school policies are clearly defined documents or in accepted practice that are designed to promote health and well-being.
- School physical environment includes the buildings, grounds and school surroundings.
- School social environment relates to the quality of the relationships among and between school community members.

- Individual health skills and action competencies can be promoted through the curriculum such as through school health education and through activities that develop knowledge and skills which enables students to build competencies and take action related to health, well-being and educational attainment.
- Community links between the school and the students' families and the school and key groups/individuals in the surrounding community.
- Health services are the local and regional school health services or school-linked services that are responsible for the students' health care and health promotion by providing direct student services.

The whole school approach used in the SHE network therefore rests on a number of core values (equity, sustainability, inclusion, empowerment and action competence and democracy) and a set of pillars (whole school approach to health, participation, school quality, evidence base, involvement of schools and communities).

The 'Whole School, Whole Community, Whole Child' Model

Another recent example of an intervention and a conceptual development in this area is the 'Whole School, Whole Community, Whole Child' model (http://www.ascd.org/programs/learning-and-health/wscc-model.aspx). In the late 1980s, the coordinated school health (CSH) model was introduced by the American CDC (Center of Disease Control). This model demonstrated how a comprehensive approach to school health could be shaped. The CSH model was widely accepted and supported by many health and education organizations. But it can also be argued that educators viewed the model as primarily a health initiative focusing on health outcomes only. Therefore, the acceptance across the education sector at the school level was somehow limited.

In 2014, ASCD (Association for Supervision and Curriculum Development), a leading worldwide education development organization together with CDC developed a new model for school health that combines the CSH model with the 'whole child initiative' from ASCD to strengthen a collaborative approach to learning and health. Their 'Whole School Whole Community Whole Child' model (Fig. 22.3) demonstrates how education and health together support the development of children—cognitive, physical, social and emotional. It is described as an ecological model, integrating the current whole school approach with a whole child approach to education (http://www.ascd.org/whole-child.aspx) and the influences of the local community.

Shape Up as a Salutogenic Health Promotion Project

Another intervention founded on the principles of pupil participation and a whole school approach is the EU-funded SHAPE UP project, focusing on overweight and obesity in children and young people (Simovska & Jensen, 2010). Although the fundamental premise of Shape Up was that healthier eating and regular physical activity are keys to preventing childhood obesity and promoting the health and well-being of children and young people, the project was built on a salutogenic approach.

The starting point was that promoting healthy diet and physical activity are influenced in more efficient and sustainable ways by addressing their determinants on a school, family, community and broader societal level, rather than solely on an individual behaviour level. Furthermore, health was framed in the project as a positive concept; play and dance instead of physical activity, food, meals and eating instead of nutrition, etc. Therefore, a key to Shape Up was the involvement of children and young people themselves through their schools in investigating the social determinants of health and formulating positive and visionary proposals for action to address them.

Within the SHAPE UP project, the IVAC approach—Investigation, Vision, Action and Change—(Jensen, 1997, 2004) was used as a guiding framework to support children in taking concrete actions to improve the determinants 'behind' their health. In practice, this typically meant improving the quality of food on offer in school, enhancing opportunities for physical activity in the school and in community settings, and increasing parents' understanding of health issues. Because of the relationship between schools and the local promoting group, young people had the capacity to see their ideas turned into action, and the individual development promoted by the programme could be supported by changes in policy and infrastructure at local level.

The Shape Up project did not focus on tackling inequality per se, but the project demonstrates that children and young people are able to initiate processes that improve determinants in their local environment and thereby promote the health of *all* children (including the vulnerable young people).

In another project, the IVAC approach used in the SHAPE UP project was proven effective in an area in Northern Spain (Llargues et al., 2011). The outcomes that were successfully achieved included among others children's BMI, showed that a participatory and action-oriented

approach, building on a positive health concept, also might lead to successful preventive outcomes.

Relations Between HPS and Young People's Health and Learning

When children grow up, their family and homes are key determinants of their health and well-being. When they enter the education system, their schools, peers and communities in which they live also become important in determining their health. So education is another key determinant to their health. Children starting their education in early life, such as preschool or kindergarten, are more likely to do well at school, get better paid employment and have better health in adulthood. Education is a key tool to help reducing inequality in income in our globalized economy, which is also recognized in the recent publication by economist Thomas Piketty on capital in the twenty-first century.

The 2013 factsheet of the SHE network provides an overview of the evidence of school health promotion (SHE, 2013). Most of the HPS evidence traditionally comes from health topic research (on healthy eating, physical activity and tobacco use), rather than from research looking at whole school approaches or looking at initiatives focusing on health in a more holistic way. The overall conclusion from topic-based research is that programmes that can be classified as a health promoting school or whole school approach deliver most evidence on improving health behaviours. This is especially true for mental health programmes in schools. Successful mental health initiatives are well designed and based on theory and practice, have links between school, community and parents and school environment and focus on relationships among students, teachers and parents (SHE, 2013).

Results are varied and demonstrate improvements in achievement tests, social and emotional skills and decreases in classroom misbehaviour, anxiety and depression. There are also demonstrated benefits concerning reduction of aggressive behaviour, school drop-out rates and building a sense of community in the school. Similar positive links have been showed on other topics with a whole school approach, specifically in the area of promoting healthy eating and physical activity. It is stated that mental health should be a feature of all school health promotion initiatives.

The 2014 Cochrane review on the WHO health promoting school framework, based on cluster randomized control trials, concludes that there is some evidence that school-based interventions building on a HPS framework are effective at improving a number of health outcomes in children and young people. It found evidence of significant, positive effects on body mass index (BMI), physical activity, physical fitness, fruit and vegetable intake, tobacco use and being bullied. It also stated that currently it has not been demonstrated that the HPS framework can have an impact on other outcomes such as mental health or attainment. The most important limitation of this review is that the many studies that are not designed as randomized control trials were not included.

Other reviews, such as the Stewart-Brown, 2006 review, commissioned by WHO EURO, uses a wider lens to evaluate what worked well and what are prominent features of a whole school approach (Stewart-Brown, 2006). The review was a systematic review of robust, systematic reviews of the impact of school health promotion initiatives on some aspects of health or well-being and did therefore not only include randomized controlled trials. It concludes that the school health promotion programmes that were effective in changing young people's health or health-related behaviour were more likely to be complex, multifactorial and involve activity in more than one domain (curriculum, school environment and community).

A paper from the International Union for Health Promotion and Education (IUHPE) shows that activities in schools on improving health and well-being are a product of interaction between school management and educational practices (St Leger, Young, & Blanchard, 2010). A supportive educational climate will motivate children and young people to be effective learners and at the same time lead to better health and well-being.

Having said that, it can also be concluded that interventions that take a whole school approach and target all students have a higher impact, everything else being equal. Furthermore, a positive health concept—as explicitly spelled out in SHE and Shape Up—improves the likelihood for improving students' ownership and therefore also for facilitating sustainable healthy changes.

Discussion and Conclusions

One of the very clear observations is that the salutogenic orientation including key concepts such as sense of coherence is rarely used explicitly in the field of school health promotion and HPS. Nevertheless, the different HPS interventions presented in this chapter demonstrate clear and obvious overlaps to the salutogenic orientation. Therefore, we only partly agree with Sagy that only a small number of holistic programmes have been developed all over the world, which are salutogenic oriented (Sagy, 2014). In other words, the HPS movement includes many different examples of interventions which could be labelled salutogenic, although they are described by terms from other scientific directions and areas.

Within the SHE approach and related models, there is a clear focus on *all people* in the 'school system', and the aims

are to improve salutary factors and not only remove risks. Both characteristics are well and explicitly reflected in the 'whole school approach' that is underpinning SHE, WSCC, the SHAPE UP project, etc.

Furthermore, all projects described in this section are dealing with the 'whole child' instead of only addressing disease and risks dimensions, in other words the focus is on a salutogenic (and not a pathogenic) approach.

Key concepts related to the notion of health are well-being, quality of life, being in control, competence to take action, play and dance (and not 'physical activity') as well as food, meals and school canteens (and not nutrition pyramids and fatty acids). This positive way of phrasing health is a precondition for reaching another key principle in the HPS approach: students' active participation and involvement which creates internationalization and ownership and therefore also the potentials for sustainable healthy change. The principle of participation is therefore also consistent with Antonovsky's underlining of "*participation in socially valued decision-making*" as a prerequisite for developing strong sense of coherence (Antonovsky, 1996, p. 15).

We therefore agree with Morgan (2014) that we need to strengthen the focus of involving individuals and local communities in the salutogenic practice as "*the more health programmes are developed with and by local people the more likely they are to be successful and sustainable*" (Morgan, 2014, p. 4).

Finally there are also strong overlaps and links between HPS concepts like empowerment, action competence and self-efficacy and the salutogenic concepts sense of coherence and Generalized Resistance Resources. The metaphor suggested by Antonovsky (1996) and further developed by Eriksson and Lindström (2008) on the river of health is a good illustration for visualizing overlaps between these concepts. Where curative medicine is devoted to help people who are drowning and preventive medicine is helping people not to fall into the river, the salutogenic approach and sense of coherence is focusing on enabling people to swim. Empowerment, action competence and similar concepts from the HPS area do have the same potential and roles: to enable people to swim—as single individuals and together.

There is a need for more research which uses a wide range of methods. Also more systems research, which attempts to assess the synergic interactions which can occur the complex reality of a school, is needed. Good practice is also part of the evidence, and the SHE network strongly advocates disseminating good practice studies results. The goal of embedding good practice in education systems is not yet accomplished. The potential of schools in improving health and reducing health inequalities needs to be better utilized and underpinned with research.

From the interventions and cases presented it is clear that there is a substantial link between HPS and whole school approaches and the salutogenic orientation. Therefore, the emerging evidence for the effects of such approaches could be used to anchor and document the effects of a salutogenic approach in schools. One important focus area for future research could be to clarify the role of sense of coherence in a HPS, which could perhaps be viewed as an intermediary and mediating factor between participatory whole school approaches and behavioural and health outcomes.

What the HPS development is currently lacking is a clear and commonly agreed overall theory, which is where the salutogenic area could help to embed and anchor school health promotion and HPS. On this basis we conclude that salutogenesis can contribute with a theoretical fundament for HPS and related approaches.

On the other hand, the intervention models and the appearing evidence of the effectiveness of a HPS approach described in this chapter can be used to strengthen the action-orientation and intervention dimension of the salutogenic theory. In other words, the HPS might help to operationalize and describe the 'Salutary factors' in the salutogenic theory, which can be viewed as the current weakest link in the salutogenic orientation.

Future Challenges

A number of key challenges are important to strengthen the role of the salutogenic orientation in school health promotion.

There is a need to develop, test and implement intervention studies in the school setting that are able to clarify pathways leading to high or low sense of coherence levels, and that provide indications and guidelines for changes in the school setting in order to optimize the development of students' SOC. The national and international networks of HPS provide perfect platforms for natural experiments for this purpose.

The role of sense of coherence as a possible mediator between a participatory and action-oriented HPS and behavioural and health outcomes need to be explored, mapped out and clarified. In this regard, the sense of coherence can be viewed as a determinant and well as an outcome in the HPS-setting and as a dependent as well as an independent variable in new research designs.

Relations between sense of coherence and typically related HPS intermediaries (e.g. empowerment, health literacy, self-efficacy and action competence) have to be explored and mapped out. The focus should be on theoretical underpinnings, measurements, relations to health outcomes and internal synergies.

Salutogenic approaches and models need to strengthen the community or collective dimensions since no one is in control of her/his own health as a single, isolated individual.

HPS models and concepts like empowerment and action competence do have the potentials to emphasize and strengthen key elements in the intervention part of the salutogenic orientation such as connectedness, collective action and social capital as key social-level generalized resistance resources.

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Mark Dooris, Sharon Doherty, and Judy Orme

Introduction

Universities are important organisations for health promotion—not only as contexts and vehicles for enhancing well-being, but also as partners in multisectoral health improvement and as contributors to citizenship development and societal change (Dooris, Doherty, Cawood, & Powell, 2012). In the UK alone, there are 162 higher education institutions (HEIs) with almost 2.5 million students and more than 378,000 staff (HESA, 2013; Universities UK, 2013), pointing to the substantial global potential offered by universities as settings in which and through which to promote public health.

In exploring health promotion and salutogenesis in the context of higher education, it is valuable to understand the specific characteristics of the sector. For many years, universities have been the focus for the implementation of interventions on various key issues, leading to student-focused guidance on drugs, alcohol, mental health and other key themes (e.g. Crouch, Scarffe, & Davies, 2006; Grant, Kester, Donnelly, & Hale, 2002; Polymerou, 2007; Universities UK, 2000). These themes have tended to be constructed as 'problems' relating to risk-taking behaviour and ill-health, a focus mirrored by the traditional focus on reducing staff illness (e.g. stress).

While universities have historically been viewed as elitist organisations, there has within the UK and other countries been an increased concern over recent years to widen access and strengthen diversity, alongside the opening up of an increasingly competitive higher education 'marketplace'. For example, in England over the past 10 years there has been a policy of 'widening participation'. The profile of students has become more diverse—with more mature students, part-time students and students from a wider range of socioeconomic backgrounds, many of whom are the first in their family to attend a university. These changes have coincided with and catalysed an increased focus on student engagement, experience and well-being, with universities recognising the importance of developing student support and well-being services to impact positively on retention and achievement.

In reviewing how health can be created and sustained in and through university settings, it is pertinent to reflect on the purpose of higher education. The *Dearing Report* (National Committee of Inquiry into Higher Education, 1997) identified this as fourfold:

1. To inspire and enable individuals to develop their capabilities to the highest potential levels throughout life, so that they grow intellectually, are well equipped for work, can contribute effectively to society and achieve personal fulfilment.
2. To increase knowledge and understanding for its own sake and to foster their application to the benefit of the economy and society.
3. To serve the needs of an adaptable, sustainable, knowledge-based economy at local, regional and national levels.
4. To play a major role in shaping democratic, civilised, inclusive society.

The role of higher education as an instrument of societal change has long been acknowledged—and Brennan, King, and Lebeau (2004) suggest that universities achieve this not only through producing highly skilled graduates and economically motivated research outputs, but also through helping to build new institutions of civil society and

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encouraging new cultural values. In the context of the 'widening participation' agenda, it has been argued that: "by encouraging students from all backgrounds to come to university, universities can do more than almost any other institution to improve social mobility and justice" (Schwartz, 2003), while the broader impact on local and regional communities is widely recognised in terms of employment, knowledge exchange, the built environment and social/community development (Centre for Urban and Regional Development Studies, 1994).

More recently, within the UK, this shift of focus has also been encouraged through a number of policy drivers. The Quality Assurance Agency for Higher Education (2012) has produced a quality code for student engagement emphasising the need for universities to provide an inclusive environment; the UK Government has produced a white paper 'Students at the Heart of the System' (Department for Business, Innovation and Skills (2011); and the Higher Education Academy has written a literature review on student engagement to facilitate the sharing of good practice (Trowler, 2010). Furthermore, the Higher Education Funding Council for England (HEFCE) (2014) is working with organisations to develop student engagement policies and inform practice as well as funding Student Engagement Partnerships.

These key developments have begun to encourage universities to gain more understanding of how health and well-being can be meaningfully translated and promoted within this setting. There is concern to provide appropriate advisory and therapeutic services that can respond to the range of health, social and welfare needs presented by this broadened student population. There is also a growing appreciation that universities comprise a range of 'communities' reflecting a broadened student population within which people can create their own social networks as well as being offered opportunities to engage, participate and become involved.

Moreover, salutogenesis implies a focus on health maintenance processes rather than disease processes. Antonovsky saw health-ease and dis-ease at two ends of a continuum. Salutogenic research looks at processes that move people towards, or keep people at, the health-ease pole.

Aligned to this idea, there have been signs of the higher education sector shifting away from a reductionist illness-oriented approach: this has been signalled by an increased use of the language of well-being and resilience (Marshall & Morris, 2011; Shutler-Jones, 2011; Steuer & Marcs, 2008) and a growing interest in moving beyond single topics and population sub-groups to embrace a more strategic and comprehensive 'whole university' approach that embraces students, employees and the wider community (Dooris & Doherty, 2009; Orme & Dooris, 2010). Universities and Students' Unions need to be actively encouraged to work collaboratively to create these opportunities and develop appropriate services.

This approach endorses the Ottawa Charter (1986) in its assertion that "Health is created and lived by people within the settings of their everyday life; where they learn, work, play and love" and is located within the field of settings-based health promotion, which Kickbusch (1996) has argued strongly is salutogenic in focus—"shifting the focus from the deficit model of disease to the health potentials inherent in the social and institutional settings of everyday life".

However, importantly, it is customised to the higher education context in recognition that universities have their own distinctive ethos and culture. Dooris et al. (2012) have proposed that this whole system perspective needs to consider the multiple roles of universities—as centres of learning and development; as foci for creativity and innovation; as places where students undergo life transition and where citizenship is developed via future shaping of students and staff; as workplaces and businesses; and as resources for and influential partners within local, regional, national and global communities.

This growing commitment to embedding health and well-being within the mainstream business of higher education coupled with the expectation that higher education will act sustainably in all that it does (HEFCE, 2014) provides the perfect springboard to also influence a process of co-ordinated action to develop sustainable, low-carbon campuses which can be considered to be salutogenic (Orme & Barna, 2010). The concept of sustainable development embraces environmental, social and economic dimensions and aspires to health-enhancing communities, societies and environments. This highlights the inextricable link between health and sustainability. This together with the growing commitment of universities to become more sustainable and to drive global change emphasises the strong link to salutogenesis.

The UK Healthy Universities Network suggests that the Healthy Universities approach aspires 'to create a learning environment and organisational culture that enhances the health, wellbeing and sustainability of its community and enables people to achieve their full potential' (http://www.healthyuniversities.ac.uk). In creating such healthy communities, we are defining communities not just by the absence of disease but how well people in them thrive.

This vision is likewise rooted in the settings approach and, while not explicit in its use of salutogenic terminology, can be readily understood to address the question 'how can movement toward the health pole of the health-ease/dis-ease continuum be facilitated?' A focus on human flourishing in the university context inevitably highlights those factors that enable people to make sense of their lives—what Antonovsky calls 'general resistance resources'—and is concerned people experiencing a strong 'sense of coherence', which Antonovsky (1987) suggested predicted positive health outcomes.

A 'sense of coherence' is a global orientation that expresses the extent to which one has a pervasive, enduring feeling of confidence that: the stimuli deriving from one's internal and external environments in the course of living are structured, predictable and explicable (comprehensibility); the resources are available to one to meet the demands posed by these stimuli (manageability); and these demands are challenges, worthy of investment and engagement (meaningfulness).

Interpreted in this way, by creating a sense of community and a learning environment and organisational culture in universities, a healthy university approach plays a central part in enhancing or developing a strong 'sense of coherence' in their students and staff.

Research

As large organisations within which people learn, work, interact and live, universities inevitably impact on the health of their communities—with institutional policy and practice, management styles, communication systems, decision-making processes and service design and provision all influencing well-being and quality of life (Abercrombie, Gatrell, & Thomas, 1998). A focus on employee health has been strongly linked to performance and productivity, with the suggestion that universities need healthy and well-motivated workers if they are to deliver high-quality services (Health and Safety Executive, 2006, p. 1). While services play an important role, there is also evidence that social networks influence a range of psychosocial factors important to well-being which can be grouped into inter-related categories—such as 'psychosocial effects' (felt social support/cohesion and sense of belonging), 'collective efficacy' (informal support and collective action) and 'cultural norms' (Harrop, Addis, Elliott, & Williams, 2006). There is also evidence that strong community networks can foster cultural norms which contribute positively to development and health behaviours (Harrop et al., 2006). In higher education settings with students maturing and growing in confidence through their experience in these communities, the importance of cultural change cannot be underestimated.

There are a number of research papers that explore salutogenesis, in particular individual-level sense of coherence, and its relationship to stress and mental well-being in university staff (Bezuidenhout & Cilliers, 2011; Kinman, 2008)—and other that focus on students' sense of coherence and its relationship to both physical and/or mental health (Anderson Darling, McWey, Howard, & Olmstead, 2007; Kuuppelomäki & Utriainen, 2003; von Bothmer & Fridlund, 2003). However, while these provide insights into the experiences of staff and students at universities, they are not directly related to the concept of the 'Healthy University' and neither engage with nor reflect an understanding of ecological whole system thinking.

There is thus only limited research exploring the links between salutogenesis and the application of the healthy settings approach within the university context. Heiman (2004) reports on a study conducted in Israel, exploring the concept of the sense of coherence in relation to social support, coping styles and the stress experiences of university students.

While not contextualising the research within a healthy settings framework, she concludes that it would be valuable to focus on students and their interaction with the environment, using the concepts of stress, coping and social support as inseparable characteristics of a systems model. Graeser (2011), explicitly locating her research to settings-related theory, developed a University Sense of Coherence scale (combining the sub-components of comprehensibility, manageability and meaningfulness) and conducted two studies with employees at a German university.

The findings showed clear correlations between the organisational-level setting-based Sense of Coherence and health. Reflecting on these findings, she argues that cultural dimensions are the basis for an organisation-based Sense of Coherence, which plays a valuable role in shifting the focus from the individual to the organisation. She concludes that an organisation-based sense of coherence works in a dynamic way with individuals in that community. This research links well with the whole system perspective of Healthy Universities, acknowledging the importance of a university's ethos and culture and discussing how individuals interact with and feel part of it—in this instance leading to learning around conditions conducive to mental health across an organisation.

Interventions and Empirical Studies

Dooris (1998, 1999, 2001) draws on the early experience of developing and implementing the University of Central Lancashire's Health Promoting University initiative to describe and discuss the framing of a whole system approach and the successes and challenges. The work explicitly seeks to apply a settings approach, which is clearly rooted in salutogenic theory (Kickbusch, 1996). His 'social ecosystem' model (Dooris, 2001) identified inputs, processes and outputs and illustrated how Healthy Universities offers a means of investing in the health and well-being of students and staff. It is argued that this can be done by balancing a traditional pathogenic focus on addressing health needs and problems with a salutogenic focus on harnessing a university's strengths, assets and potentials in order to support the well-being and flourishing of students, staff and the wider community.

More recently, this systems-based approach has been explored further (Dooris, 2005): it highlights opportunities for universities to increase understanding of health, well-being and sustainability and of their underpinning social, political, economic, cultural and environmental determinants; and it illustrates how universities play a key role in shaping the development of knowledge, values and priorities amongst students and staff—and how they have the power to shape their current and future influence within, outside and beyond the university.

Antonovsky (1996) asked what can a community do to strengthen a 'sense of coherence', that is comprehensibility, manageability and meaningfulness? The UK Healthy Universities Network has subsequently agreed a model to elucidate its vision which aligns with Antonovsky's idea of a sense of coherence (see Fig. 23.1), that is a way of making sense of the world and a major factor in determining how well a person manages stress and stays healthy. Dealing particularly with the concept of meaningfulness, which Antonovsky believes to be the most important, Fig. 23.1 can help to generate a sense of meaning around a healthy university for staff, students and wider communities which helps to explain the important components in predicting positive health outcomes.

The model is underpinned by health promotion principles such as equity, partnership, participation, empowerment and holism (Rootman et al., 2001). Central to it is a whole university approach, which involves working within and across three key strategic areas of activity—with the aims of:

- Creating healthy and sustainable learning, working and living environments (e.g. campus and building design,

work–life balance policy and supportive management culture).
- Integrating health and sustainability within the mainstream activities of the university (e.g. health as multidisciplinary cross-cutting themes in curricula, research and knowledge exchange).
- Contributing to the health, well-being and sustainability of local, regional, national and global communities (e.g. health and sustainability impact assessment, locally embedded research, volunteering and outreach).

As further illustrated in Fig. 23.2, a whole university approach is also understood to be underpinned by health promotion values and to involve:

- Anticipating and responding to higher education and public health drivers.
- Securing 'top–down' leadership while also engaging 'bottom–up' stakeholder engagement and participation.
- Combining long-term organisation development and change with high-visibility project work.
- Balancing a pathogenic focus on addressing needs and problems with a salutogenic focus on harnessing a university's strengths, assets and potentials in order to support the well-being and flourishing of students, staff and the wider community.

If practised in this 'whole system' way, the Healthy Universities approach offers opportunities to deliver important contributions to health, well-being and overall business performance and productivity. While there are no universally agreed indicators of impact, changes would be

Fig. 23.1 Healthy Universities—A model for conceptualising and applying the healthy settings approach to higher education. *Source*: Dooris et al. (2010)
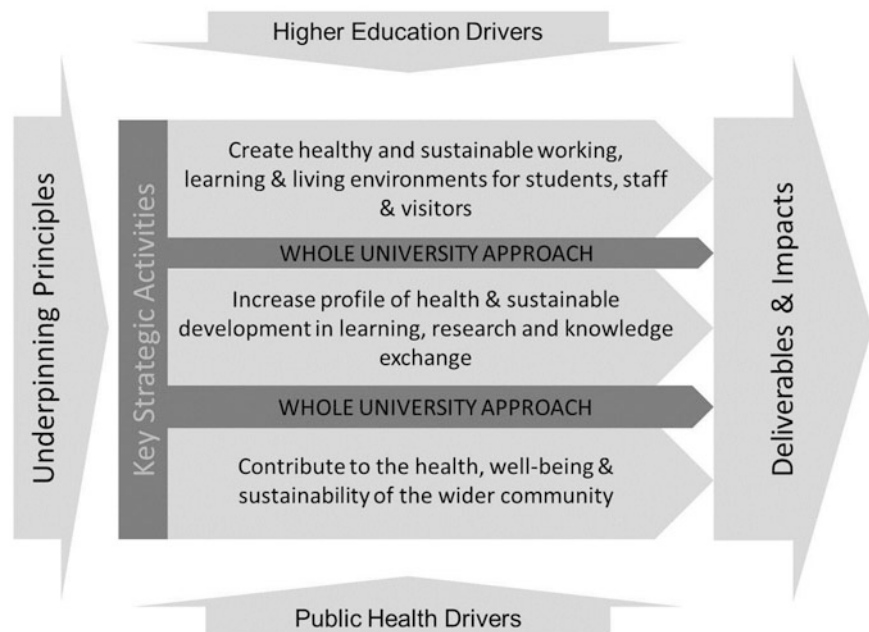
Fig. 23.2 Healthy Universities—A whole system approach. Adapted from Dooris (2004, 2009)
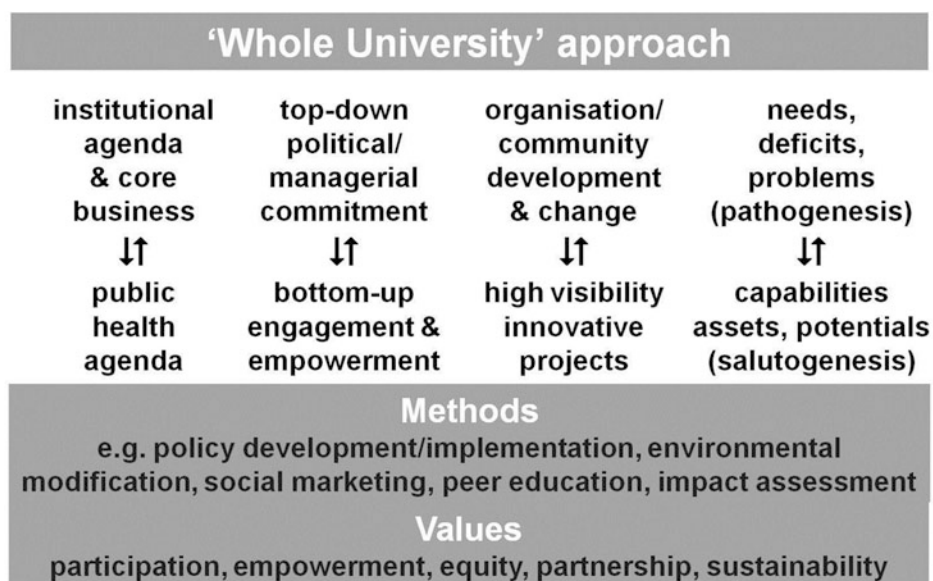
anticipated across a range of organisational functions (e.g. higher quality health and welfare services; healthy and sustainable food procurement processes and catering services; increased personal responsibility for health among students and staff and strengthened institution-level commitment to practise corporate social and environmental responsibility).

The information above is indicative of the well-developed literature around settings based approaches to public health that it is important to draw upon in any evaluation of such innovative work being undertaken in universities. Specifically, Healthy Universities can promote health and sustainability in an integrated and coherent way, and facilitate synergy between public health, sustainability and climate change agendas—taking steps to integrate its commitment by sharing examples of good practice in key areas such as active travel, sustainable food and curriculum design (Orme & Dooris, 2010).

Furthermore, Healthy Universities can make an important contribution to intersectoral health promotion through sensitising students (and staff) across multiple disciplines to a range of health issues and 'future shape' them as they clarify values, grow intellectually and develop capabilities that can enhance current and future citizenship within families, communities, workplaces and society as a whole (Dooris, Cawood, Doherty, & Powell, 2010).

In 1995, the Faculty of Public Health Medicine (1995) published a special issue of its newsletter, which argued that "initiatives in universities have emerged more or less in parallel with projects on the health-promoting workplace, school and hospital, but—without the benefit of any national or international infrastructure—they are only just beginning to generate a momentum of research and development" (Beattie, 1995, p. 2). Around the same time, two English

universities—Lancaster and Central Lancashire—established Health Promoting University programmes and collaborated with WHO Europe in writing the first guidance publication on Health Promoting Universities (Tsouros, Dowding, Thompson and Dooris, 1998). In parallel, a German Working Group was established in 1995, evolving into the German Network of Health Promoting Universities (Stock, Milz, & Meier, 2010).

Academic literature focused on Healthy Universities has largely described project delivery or reported on specific research studies relating to particular aspects of health promotion practice—as summarised below. While much of this has been framed within the conceptual context discussed above, none of the publications report on research or programme implementation that has explicitly used salutogenesis or its component constructs as a framework.

Dooris (1998, 2001) reports on an evaluation of the first 2 years of the University of Central Lancashire's Healthy University initiative, concluding that there is value in locating health promotion interventions within a holistic framework which considers the university setting as an organisational whole and appreciates that it is influenced by broader contexts and determinants. This is echoed in a Royal College of Psychiatrists (2011) report on the mental health of students, which states:

> The 'Healthy Universities' initiative has adopted an ambitious rationale in relation to student health. The university or college is seen not only as a place of education but also as a resource for promoting health and well-being in students, staff and the wider community . . . The 'Healthy Universities' systemic and holistic approach is commended and should be adopted as widely as possible.

Xiangyang et al. (2003) report on the development of health promoting universities across Beijing, acknowledging

the importance of a shift in focus from treating illness to prevention and health promotion and highlighting the centrality of creating health-supportive environments, and concluding that the university community can benefit greatly from implementing health promotion campaigns based on the principles of the Ottawa Charter.

Meier, Stock, and Krämer (2006) discuss the contribution of health discussion groups to health promotion at the University of Bielefeld, concluding that they offer a valuable means of increasing students' participation and empowerment and of influencing strategic decision making.

An earlier study at the same university examined students' health-related behaviours (Stock, Wille, & Krämer, 2001) and while framed in terms of 'health needs', highlights the importance of also focusing on health potentials and personal resources. Coffey and Coufopoulos (2010) report on students undertaking a health needs assessment at Liverpool Hope University. While the focus on needs would seem to locate the work outside of salutogenesis, the approach reflects a belief that a health promotion curriculum should itself enable people to increase control over and improve their health.

Reporting on a 2-year feasibility project concerned with the establishment of University of Brighton as a Health Promoting University, Davies and Hall (2011) highlight the connections with core agendas such as recruitment, retention and productivity and suggest that the process can be a valuable mechanism for harnessing and adding value to existing good practice. Emphasising the importance of applying Ottawa Charter principles such as building healthy policy and creating supportive environments, the report explicitly references salutogenesis. Similarly, in exploring the application of a whole system approach to food within the university context, Doherty, Cawood, and Dooris (2011) locate their discussion within the Healthy Universities framework, which they argue has an explicitly salutogenic orientation. Most recently, Knight and La Placa (2013) report on a pilot Healthy University initiative at Greenwich University. Using a settings approach that sees the organisation as a key determinant of its members' health and well-being, this has prioritised the allocation of resources to activities that will create sustainable health-enhancing processes.

Discussion

When considering the implications for salutogenesis policy, practice and research relating to the university setting, it is valuable to explore developments and opportunities at three levels.

Firstly, at international and national levels, the interest in the whole system Healthy universities approach clearly reflects the success of other settings programmes such as Healthy Schools and Healthy Further Education. School-focused evidence reviews support a whole school approach, suggesting that effective programmes are likely to be complex, multifactorial and involve activity in more than one domain (Stewart-Brown, 2006; St Leger, Young, Blanchard, & Perry, 2010) while a review focused on further education concluded that "while it is not possible to state with certainty that multi-component, whole-settings approaches are more successful in college and university settings than one-off activities, the evidence points in this direction" (Warwick, Statham, & Aggleton, 2008: 27).

These conclusions resonate with wider research such as the Foresight Report on Obesity, which suggested that "the complexity and interrelationships . . .make a compelling case for the futility of isolated initiatives" (Butland et al., 2007, p. 10).

Reflecting this growing interest, overarching visions and frameworks have been proposed within which to structure work. The Edmonton Charter for Health Promoting Universities (2005) set out a shared vision that included enabling purposeful lives and creating healthy and sustainable environments, while the 'Quality Criteria for Health Promoting Universities' issued by the German Network of Health Promoting Universities (2010) state that "A Health Promoting University is based on the concept of salutogenesis and focuses on the conditions and resources necessary for health". As highlighted above, the UK Healthy Universities Network (http://www.healthyuniversities.ac.uk) positions a Healthy University as one that 'enhances the health, wellbeing and sustainability of its community and enables people to achieve their full potential'—an aspiration that has been endorsed by the emergent European Network of Health Promoting Universities (http://www.eurohpu.aau.dk).

The UK Network has also produced a toolkit (http://www.healthyuniversities.ac.uk/toolkit) comprising guidance documents, case studies and a self-review tool, to support the evidence-informed delivery of a whole university approach to health and well-being that, while not necessarily using the explicit language of salutogenesis, is evidently salutogenic in orientation—encouraging member universities to foster health potentials and resources to support well-being and human development.

This toolkit facilitates universities to develop a proactive and coherent Healthy Universities action plan that strengthens resources and potentials and addresses a range of influences on the health and well-being of its community—through policy implementation, training, information, service provision, asset-mapping and skills development. Most recently, the Okanagan Charter for Health Promoting Universities and Colleges (2015) calls on higher education use a salutogenic approach to generate thriving, empowered,

connected and resilient campus communities supported by a culture of well-being.

Secondly, at the university level, there is evidence of a growing interest in implementing such a whole university approach—encompassing a concern to ensure promotive and protective factors for health, well-being and human flourishing. In the UK, for example universities have responded to the student engagement and experience agendas by using student charters to express their intentions towards creating a learning culture and supporting students to reach their potential (Department for Business, Innovation and Skills, 2011); and university-based students' unions offer a range of student-led clubs and societies across a range of interests and activities; and there are numerous examples of practical approaches to promoting an inclusive and valuing environment, developing appropriate services for staff and students and increasing access to affordable healthy and sustainable food. In guiding practice and research within an often large and complex setting such as a university, it is important to consider a number of connected questions: what are the likely mediators of these community effects? How can staff and students be supported to develop their sense of belonging? how can the institution as a whole provide a supportive context that can strengthen sense of sense of place and sense of self (Kickbusch, 1996)?

The third level to be considered is the interface between people within the university and the university as a context. In this respect universities are complex, in that they involve students, staff and external stakeholders, and are located within wider communities. The Healthy Universities approach includes opportunities for individuals to be given a voice and shape policy, services, information and projects—and can usefully explore how people interact and find meaning within the setting, appreciating that these interactions have the capacity to either support or impact negatively on well-being. While it is important to acknowledge the reality of continuing health 'problems', illnesses and needs, the Healthy University approach must continue to assert its salutogenic focus, supporting its community to thrive and flourish.

It is fundamental that this multilevel approach to salutogenic policy and practice in universities is supported by a focus on salutogenic research. There is currently a lack of salutogenic research that focuses on health creation and maintenance and looks at the underpinning processes in higher education settings that are health enhancing and strengthen 'sense of coherence' (i.e. comprehensibility, manageability and meaningfulness). This requires researchers to consider felt and expressed improvements in health and well-being within the context of a whole system

orientation—and to explore what a salutogenic orientation can do for the core business of universities. This would also contribute to the development of evaluative research and the strengthening of the evidence base for Healthy Universities.

Conclusion and Challenges for the Future

Looking to the future, the Healthy Universities approach offers enormous potential to support the creation and maintenance of health and flourishing of students, staff and the wider community. There are, though, challenges to face.

Firstly, higher education as a sector does not exist primarily to promote health. In seeking to embed a commitment to health, it is therefore imperative that we are able to demonstrate and illustrate how investment in well-being can contribute to the delivery of core business goals.

Secondly, the language of 'health' still tends to be closely aligned with concepts of illness and disease. It will therefore be necessary to engage with 'pathogenic' perspectives and the very real health problems facing universities, but to shift the orientation towards salutogenesis. Through exploring how health can be a resource to support core university business, it is possible to make the case for harnessing and strengthening positive health assets and potentials.

Thirdly, many determinants of both illness and health and human potential are located outside of universities. This highlights the importance of strengthening the advocacy role of universities to call for action and become a powerful force for positive change, helping to create conditions that support well-being, cohesion, inclusion, sustainability and social justice within universities, their local communities and society as a whole. It is evident that universities play an important role in training staff and educating students in ways that increase understanding of the determinants of health and health equity and unleash multisectoral innovation, creativity and passion for well-being, sustainability and social justice.

Discussing sectoral developments within higher education in the UK, Steuer and Marcs (2008) critique a perceived over-emphasis on economic development, which they see as fuelling individual competitiveness. In response, they advocate a transformative approach to quality in higher education that serves the dual purpose of enhancing both personal and collective well-being—prioritising features such as enjoyment and fulfilment; autonomy and reciprocity; connectedness and belonging; and empowerment and ability to effect change. Such an approach offers a potential way forward for strengthening comprehensibility, manageability and meaningfulness within the university setting.

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Introduction

Correctional institutions are typically harsh environments for both corrections workers and the inmates who have been incarcerated. There is a paucity of literature on how to design prisons to be health promoting, and what is there largely focuses on behavioral and environmental approaches to benefit the health of inmates with little reference to salutogenesis (Dilani, 2001; Woodall, de Viggiani, Dixey, & South, 2014). Thus, this chapter introduces the emerging literature on salutogenesis in corrections workers, mainly coming out of the Center for the Promotion of Health in the New England Workplace (CPH-NEW, 2015), one of four centers of excellence supported by the Total Worker Health® program of the National Institute for Occupational Safety and Health in the United States (NIOSH, 2016).

In 2006, CPH-NEW received a request from union leaders in a state corrections system for help in addressing serious health problems being experienced by correctional officers and supervisors and hence sought out new field sites at which to conduct research-to-practice studies on integrated health protection and promotion programs. After determining there was a lack of prior research in this area, CPH-NEW conducted field studies at two matched correctional institutions with the overall goal of assessing if a program that engaged correctional officers in the participatory design of workplace interventions would be more effective than a conventional program in which interventions are introduced in a top–down manner by health professionals. Through interactions with union leaders, corrections staff, and management for this project, CPH-NEW researchers have gained a better understanding of the many challenges corrections workers face in this difficult work environment (Morse, Dussetschleger, Warren, & Cherniack, 2011).

Correctional officers have one of the most stressful jobs in our society (Summerlin et al., 2010) yet have been largely neglected in occupational safety and health research. Chronic stress is linked to many negative health effects including cardiovascular disease (McCraty et al., 2009), and so it should not be surprising that correctional officers are at increased risk for this disease (Harenstam, Palm, & Theorell, 1988). Rapid increases in musculoskeletal disorders among correction officers have also been linked to psychosocial exposures, including decision latitude (control), psychological demands, supervisor support, and coworker support (Warren, Dussetschleger, Punnett, & Cherniack, 2015). Additionally, nearly one in four correctional officers fit the criteria for posttraumatic stress disorder (PTSD) (Spinaris, Denhof, & Kellaway, 2012), and it was estimated that correctional officers suffer from suicide rates nearly triple of those observed among the general population and in other related occupations such as police officers (State of New Jersey & Governor's Task Force on Police Suicide, 2009). High numbers of workers compensation claims and sick days are also common in corrections, with one study reporting that correctional officers in the state of New York have an absenteeism rate three times higher than the average rate of all other occupations (Schaufeli & Peeters, 2000). One of the more sobering statistics is that actuarial tables indicate a 12–15-year life expectancy gap between correctional officers and the general population (Cheek, 1984; Commission on Safety and Abuse in America's Prisons, 2005).

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The above evidence is particularly alarming because young adults usually join this workforce in above-average health after meeting physical fitness standards as part of academy selection and training, and because their health benefits often includes access to such things as employee assistance programs that provide support beyond primary and secondary medical care. In general, the evidence suggests that conventional compensatory approaches to occupational health which focus on reducing or eliminating recognized health risks, as well as reducing the impact of health problems, have not been fully effective in protecting and promoting the health of correctional officers. New approaches need to be considered.

In this chapter, we first describe some of the root causes of health problems in corrections by reporting findings that emerged from a focus group study on correctional officer stress (Bauerle, Zandra, Bizarro, Henning, & Roberts, 2013). This also serves to highlight why Antonovsky's (1979) theory of human perception, sense of coherence, is so relevant to correctional officers who must cope with the challenging stress of their job. Existing research is then reviewed that provides evidence for the potential role that individual sense of coherence and salutogenic health promotion programs could play in mitigating the effects of workplace stress. A set of recommendations are then made for planning salutogenic interventions in corrections, including assessing the organizational health climate and correctional officers' perceptions of the health-promoting qualities of their workplace. We then go on to describe the salutogenic aspects of a programmatic approach CPH-NEW has used successfully in corrections and elsewhere to engage front-line employees in the design of workplace interventions to benefit worker health protection and promotion. We also describe an officer-led health mentoring program that is currently being implemented by CPH-NEW, and how it was shaped in part, by application of salutogenic principles. We end this chapter by discussing future research needs and application areas.

Sources of Officer Stress in Corrections Settings

Of the many health, safety, and well-being issues that pertain to work in corrections, job stress is one of the most salient and pervasive (Neveu, 2007; Schaufeli & Peeters, 2000; Whitehead & Lindquist, 1986). Although the need for interventions to address job stress in corrections is undeniable, part of the challenge in pursuing successful interventions stems from the multifaceted nature of job stressors specific to corrections. This makes it challenging for researchers and organizations to decide which stressors to target with an intervention. Also, field research by CPH-NEW has shown that correctional officers tend to under-report stress levels, as evidenced by physiological data that indicate high stress exposures, such as hypertension (Morse et al., 2011). This finding is just one example of how challenging it might be to establish and maintain a salutogenic approach in this underserved population of workers. Adding to this challenge, correctional officers tend to be quite cynical about their organization and about organizational change in general (Schaufeli & Peeters, 2000).

Research on job stress is very limited in this population, and so a structured focus group study was conducted to investigate its sources (Bauerle et al., 2013). Initial validation efforts of the focus group script with union leaders in corrections, however, revealed that mainstream definitions of stress were not an appropriate fit for describing how stress is experienced among correctional officers. Therefore, correctional officers participating in these focus groups were first asked to define job stress collaboratively. The stress definition that emerged in each focus group then served during the remainder of that focus group meeting as the basis for specific questions concerning sources of stress.

We found that the many sources of stress for correctional officers are not only very complex and interconnected, but are also deeply ingrained in the culture of corrections work and the way this work is structured. For example, a common misconception is that interacting with inmates is the most significant source of occupational stress for correctional officers due to the dangerous and unpredictable nature of inmate behaviors and frequent contentious interactions with them. However, our research confirms previous findings that this is not the case (Whitehead & Lindquist, 1986). Rather, various work organization factors, strict administrative oversight, and seemingly contradictory and rigid policies and procedures are reported as being more stressful to corrections workers than interacting with inmates. Other major sources of stress for correctional officers include concerns about security and work/family imbalance (Morse et al., 2011).

Need for and Conceptualization of Salutogenic Interventions

Consideration of the organizational context for any intervention is of paramount importance to its success. Ultimately, the health climate of a correctional institution may provide the best global estimate of the strength of salutogenesis in this workplace as well as organizational readiness for salutogenic interventions. Organizational health climate itself can be conceptualized as salutogenic in nature because of its focus on positive health norms within an organization. Organizational health climate has been defined in our research as "employee perceptions of active support from upper management as well as supervisors and coworkers for

the physical and psychological wellbeing of employees" (Zweber, Henning, & Magley, 2016). A healthy organization is one that focuses not only on the success of the organization but also on employee health and well-being (Sauter, Murphy, & Hurrell, 1990). Organizational health climate is also considered a key component of a healthy organization.

From a salutogenic and Total Worker Health® (NIOSH, 2016) perspective, the organizational health climate of a healthy organization reflects a set of norms among individuals in this organization that are based on positive health attitudes and behaviors. An organization with a robust health climate will have positive health norms among employees in addition to feedback and feedforward control systems in place to maintain these norms. These systems enable organizations to not only respond to employee health needs in a compensatory manner but also to be proactive and prevent health issues from occurring in the first place (Henning & Reeves, 2013).

Although efforts can and should continue to identify and reduce work stressors found in corrections, altogether eliminating these stressors may not be possible. Working in correctional institutions will continue to be dangerous, and a hierarchical organization with a chain of command is necessary to ensure adherence to critical safety protocols and procedures. Consequently, conventional workplace intervention approaches that focus solely on reducing or eliminating existing stressors as risk factors to health are not likely to be fully effective in this particular work environment.

A complementary approach to risk reduction efforts, consistent with salutogenic principles being advocated here, contributes to health improvement by strengthening correctional officers' resources for handling stress through the participatory design of workplace interventions that address sources of stress as well as other health and safety concerns. This suggests that departments of correction that implement salutogenic policies and practices in support of empowering and engaging correction officers in this manner can expect improved employee health outcomes compared to those that implement policies and practices limited to only addressing the pathogenic aspects of health. Beyond the salutogenic benefits to correctional officers from simply being involved in these participatory design efforts, any resulting workplace interventions are also more likely to be salutogenic in nature, as explained below.

The Potential for Sense of Coherence to Moderate Stress in Corrections

CPH-NEW has also focused on the well-established salutogenic theory of sense of coherence in relation to how correctional officers respond to stressful situations.

Antonovsky (1979) originally conceived of sense of coherence within the salutogenic framework to help explain why some individuals were able to survive challenging conditions while others floundered. Individuals with high sense of coherence gather and utilize internal and external resources to manage stressful or challenging situations by perceiving and experiencing these situations as meaningful, manageable, and comprehensible (Antonovsky, 1987b). Therefore, the sense of coherence construct appears to be well suited to assessing correctional officer resilience in stressful situations given the unavoidable challenging and life-threatening conditions these workers face.

The importance of sense of coherence for workers has been demonstrated in many other work settings. Personal tension resulting from stressful events is inevitable regardless of socioeconomic status or cultural background, and all individuals experience *breakdown*, or stress, as a result of unsuccessfully managing moments of strain (Antonovsky, 1979). Furthermore, even though Antonovsky (1979) originally theorized that sense of coherence is relatively stable after the age of 30, he later acknowledged that an individual's first experiences in a work environment could be a key feature in shaping an individual's sense of coherence, and ultimately included an individual's work environment in his model of how to promote sense of coherence (Antonovsky, 1987a; 1996). Therefore, the protective benefits of sense of coherence identified in other work contexts will most likely apply to correctional officers. Correctional officers with a strong sense of coherence would be expected to be more resilient and better able to handle stressors which may otherwise be perceived as either overwhelming or unmanageable.

When Antonovsky laid out his new model of salutogenesis in which job characteristics affect the three factors of sense of coherence (comprehensibility, manageability, and meaningfulness) individually (1987b), comprehensibility was theorized to be affected by the job security and climate within the workplace. Without job security and high-quality communication, employees can begin to feel confused and uncertain about many aspects of the organization they work in, and these uncertainties can be expected to undermine the comprehensibility of their work environment. Therefore, some specific ways of promoting salutogenesis in the corrections environment could include improving the quality and effectiveness of supervisor and coworker communications as well as increasing correctional officer involvement in organizational decision making. Interventions like these could directly reduce correctional officers' strain by improving their ability to perceive stressful events in corrections as more meaningful, manageable, and comprehensible (Henning & Reeves, 2013).

The methods for promoting salutogenesis in the workplace mentioned thus far suggest that workplace policies and

practices are important factors to consider in correctional officers' experiences of job stress. However in the corrections environment, the development of a positive organizational health climate might be particularly challenging due to certain deeply rooted attitudes, perceptions, and norms found in this highly structured workplace and work organization. For one, it is typical for both male and female correctional officers to openly portray a "tough exterior." Consequently if caring about health and wellness is viewed as a sign of personal weakness, then correctional officers will be less likely to engage in this behavior. On the other hand, correctional officers generally experience a strong sense of camaraderie because each officer can depend on other officers to "have his/her back." This means that correctional officers are committed to doing everything possible to provide immediate assistance whenever a fellow correctional officer is threatened or attacked by inmates. This same camaraderie could also help unite officers in the creation of a positive health norm. Additionally, there is a general readiness among correctional officers to take action to improve or maintain their health because many are well aware that their fellow officers sometimes die suddenly just before or shortly after reaching retirement age, in some cases after only 20 years of service. This readiness for change can contribute to the effectiveness of salutogenic workplace interventions and their impact on organizational health climate and correctional officer sense of coherence.

Descriptive Research

Beyond the research on sense of coherence and correctional officers conducted by CPH-NEW, research investigating the influence of salutogenesis and sense of coherence on job-specific strains and also physical and mental health has grown in recent years. For example, individuals with high sense of coherence reported lower levels of emotional exhaustion and occupational disengagement related to job strain in Sweden (Söderfeldt, Söderfeldt, Ohlson, Theorell, & Jones, 2000), and nurses with a strong sense of coherence demonstrated positive affect following stressful task interruptions in Hong Kong (Shiu, 1998). Furthermore, sense of coherence has demonstrated a buffering effect on the negative impact of work strain on mental health in several diverse samples including: Israeli social workers (Gilbar, 1998), German healthcare workers (Hoge & Bussing, 2004), Lithuanian nurses (Malinauskiene et al., 2009), and real estate brokers in Western Australia (Love et al., 2011).

In longitudinal studies, one 3-year cross-lagged study of Finnish managers found support for the positive influence of employee sense of coherence on developing organizational climate (Feldt et al., 2004). Feldt and colleagues (2000) and

also Rothmann, Steyn, and Mostert (2005) found that increases in the quality of supervisor–subordinate relationships resulted in increases in employees' sense of coherence in samples of 219 Finnish employees from four separate organizations and 215 South African employees of an electrical company, respectively. Albertsen, Nielsen, and Borg (2001) found in a study of Danish employees that increased coworker support and involvement in meaningful decisions, both of which could be fostered through a salutogenic intervention, were positively related to an individual's sense of coherence.

Although correctional officer sense of coherence is rarely assessed in the literature, one study investigated the potential beneficial effects of sense of coherence on uniformed male officers in Poland (Ogińska-Bulik, 2005). In the sample of 330 uniformed male officers, which included policemen, firefighters, correctional officers, security guards, and city guards, correctional officers had the highest sense of coherence, the lowest level of job stress and also the best state of health. The relationship between sense of coherence and perceived job stress in the overall sample of uniformed officers indicated that sense of coherence matters in regard to how officers assess various situations as being either stressful or not stressful, suggesting that sense of coherence could also play a major role in corrections in regard to how correctional officers cope with stressful situations.

Each of the above studies lends support to the working assumption that salutogenic interventions that impact organizational climate in corrections can result in an increase in employee sense of coherence because the same organizational factors that change to benefit organizational health climate can also contribute to employees' sense of coherence. Given the conceptualization of organizational health climate as an important component of healthy organizations, increased sense of coherence among officers could also contribute to a healthier organization. Together, the above studies provide some support for a reciprocal relationship between a desirable organizational climate and high employee sense of coherence, and show potential for promoting both within departments of correction to significantly benefit employee well-being.

Intervention Research: Measures of Salutogenic Work and Organization

In order to perform meaningful research on salutogenic interventions, it is important to have validated measures of the salutogenic change and outcomes such as an improved organizational health climate. In order to measure organizational health climate in a way that such interventions can be better planned and tracked, the Multi-faceted Organizational Health Climate Assessment (MOHCA) scale was developed

which separates health climate into three organizational levels: workgroup, supervisor, and organization (Zweber et al., 2016). We posit that this scale can be used effectively as a diagnostic tool to address salutogenic needs at each organizational level within corrections. The facets of this scale can be used to assess whether there are strengths or weaknesses in regard to the norm for health and health promotion at the work group, supervisor, or organizational levels. Identifying any potential weaknesses, such as the lack of support and encouragement from supervisors for employee involvement in health promotion programs available in the organization, could be used to help target-specific workplace health interventions to benefit organizational health climate and the sense of coherence of correctional officers in general.

In regard to the measurement of workplace factors related to salutogenic interventions, there is also a newly developed work-related sense of coherence scale (Work-SoC) which assesses "the perceived comprehensibility, manageability and meaningfulness of an individual's current work situation" (Vogt, Jenny, & Bauer, 2013). Using this scale to assess a correctional officer's perception of the potential health-promoting qualities of his/her current work situation could help target-specific characteristics of the working environment (any work-related structures and processes) for salutogenic interventions. For example, if many correctional officers rate their current jobs and work situations as unmanageable, interventions could increase the involvement of correctional officers in decision-making activities that would significantly impact their current work situations.

If it is possible for upper management to evaluate the salutogenic orientation of their workplace via organizational health climate, and also employees' perceived comprehensibility, manageability, and meaningfulness of their current work situations, it may also be possible to identify deficiencies that are most salient to correctional officers at a given correctional institution. Scores on the MOHCA and Work-SoC assessments described above can therefore serve as a starting point in setting priority areas for salutogenic workplace interventions.

Participatory Design of Workplace Interventions

Once workplace deficiencies have been identified, it would be best if correctional officers are able to engage in planning interventions to correct these deficiencies. This is because their direct involvement in the planning and design of interventions can benefit their sense of coherence according to the model put forth by Antonovsky (1987a). Aspects of the workplace that can affect health and well-being would immediately become more comprehensible and manageable

if employees are provided with some training on ergonomics and health promotion principles prior to engaging in intervention design activities. It is also inherently meaningful for employees to be involved in intervention planning efforts that will benefit their own health and safety as well as that of fellow correctional officers and their families. In addition to influencing comprehensibility and manageability, participation in decision making is known to be a key job design characteristic for individuals to find meaning in their work (Albertsen et al., 2001; Sagy & Antonovsky, 2000).

Thus, fostering collaboration and shared decision-making activities between management and front-line employees during intervention planning efforts like these, which would include working with lieutenants, captains, and counselor supervisors within corrections (Reeves, Walsh, Tuller, & Magley, 2012), has the potential to benefit all three dimensions of sense of coherence for those involved.

Researchers are increasingly studying whether programmatic approaches in various settings (i.e., residential, educational, clinical, and work) can impact individual sense of coherence with positive results (Bauer & Jenny, 2007; Kähönen, Näätänen, Tolvanen, & Salmela-Aro, 2012). A program which supports employees being regularly involved in the participatory design of workplace interventions has been developed by CPH-NEW researchers (Henning, Warren, Robertson, Faghri, & Cherniack, 2009). This programmatic approach for supporting continuous improvement of employee health protection and health promotion has been tested at two correctional institutions. Modeled after participatory ergonomics (PE) programs for continuous improvement (e.g., Haims & Carayon, 1998), and also incorporating health promotion (HP) principles, the resulting, integrated "PExHP" program (CPH-NEW, 2016) can provide a number of salutogenic benefits (Henning & Reeves, 2013).

A PExHP program consists of a "design team" of 5–10 front-line workers who design workplace interventions, and also a program steering committee that provides general program oversight and chooses which workplace interventions to implement. The design team first receives training on how to apply principles of participatory ergonomics and health promotion, then with the help of a program facilitator and without any of their supervisors present, the design team prioritizes health/safety issues/concerns and engages in intervention planning efforts. A set of intervention proposals is then presented to the steering committee for possible implementation. In many cases, the design team can also assist with both their implementation and evaluation. The planning and design cycle then repeats, with the design team focusing on the next high-priority health/safety issue/concern for continuous improvement of workplace health and safety to assure program sustainability.

This structured process for planning interventions within PExHP programs has been developed and tested through use

of the Intervention Design and Analysis Scorecard, or IDEAS Tool (Robertson et al., 2013, 2015). The IDEAS Tool further empowers front-line employees in the intervention planning process by providing step-by-step guides for how to first identify root causes of problems/concerns (that can be either pathogenic or salutogenic in nature), and then to develop intervention ideas along with a business case for their implementation that the steering committee and upper management can then review and often support. This structured participatory approach to intervention planning within PExHP programs can contribute to meaningful ownership of the interventions by both management and front-line employees, something that is known to greatly contribute to the success of an intervention when it is eventually implemented (Brown, 2002; Cherniack et al., 2016; Henning et al., 2009).

The workplace interventions that were approved and implemented by site steering committees in the PExHP programs in corrections addressed a wide range of health/safety issues/concerns, and in accordance with Total Worker Health principles, consisted of a combination of behavioral/lifestyle changes and changes to the workplace in order to more fully benefit both health protection and promotion (Robertson et al., 2013; Ferraro, Faghri, Henning, & Cherniack, 2013). At one correctional institution for example, the combined design team and steering committee organized a health fair with themes most relevant to correctional officer well-being, such as how to establish healthy sleep patterns when working third shift. Upper management arranged for a rotation schedule that would relieve each correctional officer from his/her duties long enough to attend this event, demonstrating the top–down support from management that is essential to improving organizational health climate as defined earlier.

PExHP programs are expected to contribute to salutogenesis in corrections in several ways. As reviewed by Henning and Reeves (2013), comprehensibility in Antonovsky's model was theorized to be affected by the climate within the workplace, which is highly dependent on high-quality communications. Albertsen et al. (2001) found that support from coworkers was related to increases in sense of coherence, and PExHP programs provide this support by helping front-line workers address their health/safety issues/concerns together as well as jointly with mid-level supervisors and upper management. Workplace climate is also benefited by managerial commitment to the PExHP program because PExHP programs support a continuous improvement process with employee involvement, acknowledgment of employee health/safety issues/concerns, and increased collaboration with management within a structured intervention planning approach that improves management–employee relations on health-related matters (Henning & Reeves, 2013).

The effectiveness of a PExHP program from the perspective of the employee participants on the design team can also be assessed, supporting efforts for continuous improvement of the program itself (Matthews, Gallus, & Henning, 2011). It is also possible within PExHP programs for an organization to require that each workplace intervention has a salutogenic impact in addition to the conventional evaluation criteria of impact/scope, short and long-term health and safety benefits/effectiveness, resources/cost, and barriers/obstacles to implementation (Henning & Reeves, 2013). For example, an expected salutogenic impact could be an aspect of Work-SOC such as the need for jobs and work situations to become more structured, which would then be considered along with the conventional evaluation criteria when rating each potential intervention activity. Those intervention activities ranking high in aspects or dimensions of Work-SOC would be more likely to be chosen for implementation by the PExHP program steering committee.

Coworker Mentoring as a Salutogenic Intervention

CPH-NEW is currently conducting research on one other programmatic intervention approach in corrections that has a salutogenic focus; a health mentoring program designed to protect and promote the health of incoming correctional officers. Based on empirical evidence collected in CPH-NEW studies, the health of these new officer cadets is highly vulnerable to the detrimental effects of job stress during their first years of service. By pairing veteran correctional officers (the mentors) and new officers (the protégés), a relationship is formed through regular informal meetings that provides opportunities for new officers to discuss problems they face as a corrections worker, and to receive support and guidance from an experienced officer.

The health mentoring program is designed, in part, to improve cadet resiliency, and so provides another opportunity to apply salutogenic principles in this challenging work environment. In addition to helping buffer the impact of stressors on new officers' health in their first years of service, improving the sense of coherence of these officers also has the potential to benefit their health and well-being for as long as they work in corrections according to Antonovsky's conceptualization that individuals' environments can affect their level of sense of coherence (Antonovsky, 1987a; 1996).

The question of whether sense of coherence in the workplace is an enduring trait, or is an orientation that is influenced by one's environment (Vanndrager & Koelen, 2013; Vogt et al., 2013), is one for which the mentor project hopes to determine. And although mentoring is a fairly common intervention that has been studied in many settings, particularly the workplace (Eby, Allen, Evans, Ng, &

DuBois, 2008), we are not aware of any published study examining the relationship between mentoring initiatives and sense of coherence in the workplace.

Several components of the CPH-NEW health mentoring program were guided by a salutogenic perspective. A primary concern for the research team was that being in the program needed to be experienced as manageable by the mentors who would be involved on a volunteer basis. Inasmuch as program manageability would be impacted by the effectiveness of the mentor–protégé relationships, mentors were provided with special training regarding their role as a mentor. Given the rigid hierarchical nature of corrections systems, establishing an appropriate mentoring role is somewhat challenging because officers were previously not allowed to deviate from the existing personnel policies and procedures regarding employee interactions.

Therefore, a participatory design approach was initially adopted involving corrections staff, union leaders and the CPH-NEW research team to carefully define the role of a correctional officer mentor.

Another salutogenic consideration regarding the structure of the health mentoring program was the perceived degree of comprehensibility of the program for both mentors and protégés. In part because the health mentoring program was unprecedented at the study sites, a participatory design approach was initially adopted to help promote program comprehensibility. The first meeting of the mentor and his/her protégé was used to set expectations for both parties, and as a means to establish clarity and understanding on what the mentor–protégé interactions might entail. Initially, the mentor–protégé relationship is likely to be somewhat ambiguous but it can be later clarified to become more predictable and also more comprehensible to both parties given the way that this mentor program has been structured.

Finally, the health mentoring program was specifically designed to support mentor–protégé relationships (Vanndrager & Koelen, 2013). Protégés are therefore expected to increase their sense of coherence because they will experience increased social support; that is, the degree to which they perceive that other employees care about their well-being on the job through positive forms of social interaction (Kossek, Pichler, Bodner, & Hammer, 2011). This is particularly valuable in a corrections environment where there is a general expectation for new officers to be tough, and where there is disapproval for any new officer expressing weakness. Similarly, social support in the mentor program lends itself to a meaningful experience for the protégés by creating a sense of belonging (Vanndrager & Koelen, 2013).

For mentors, the act of mentoring itself has significance because it affects the degree to which they perceive their job activities as having a positive impact on other people. These aspects of the health mentoring program are expected to promote salutogenesis in the workplace and also support the development of a healthy organization.

Discussion

Salutogenic approaches to improving the health and well-being of correctional officers show great potential to help these public service officers become more resilient and capable of handling the many stressors they encounter on a daily basis. Salutogenic approaches for developing individual sense of coherence and improving organizational health climate can also help balance the pathogenic focus that dominates most health protection and health promotion programs that currently exist in corrections and elsewhere.

Regular assessment of organizational health climate could help corrections organizations verify that acceptable norms for salutogenesis have been established at the coworker, supervisor, and organizational levels. In addition, the Work-SoC Scale could be used to regularly assess correctional officer's perceptions of the potential health-promoting qualities of their workplace.

In conjunction with regular organizational and workplace assessments, engaging correctional officers in a programmatic approach for planning workplace interventions on a continuous basis is also recommended. Correctional officer sense of coherence can be benefited by the specialized ergonomics and health promotion training that correctional officers receive prior to planning workplace interventions on a design team, and by their engagement in the process of identifying and prioritizing health problems and concerns (knowledgeability), and collaborating with upper management (manageability and meaningfulness).

It is also possible for organizations to set salutogenic standards for workplace interventions as part of their PExHP program (Henning & Reeves, 2013). An officer-to-officer health mentoring program has the potential to benefit new correctional officers' sense of coherence in the first years of their career when they appear to be most vulnerable to loss of good health, and during a period in which their work experiences may have the largest impact on the development of their sense of coherence. This health mentoring program can also be expected to strengthen the sense of coherence of the correction officer mentors (meaningfulness).

Implications for Salutogenesis Research

Further research is needed to examine barriers to successful salutogenic interventions in corrections, and also to determine how to overcome them. For example, a better

understanding of the determinants of the workplace culture in corrections may suggest a means to get past the external toughness that is often portrayed by correction officers, even when they are distressed and experiencing job burnout. And although we highlighted the potential for a reciprocal relationship between organizational health climate and correctional officer sense of coherence, empirical research is needed to examine the possibility that improved organizational health climate would contribute to the effectiveness of salutogenic interventions, and vice versa.

Longitudinal studies on the Work-SoC of correctional officers could reveal the extent that sense of coherence changes over time for individuals in this work sector, and could also shed light on the long-term sustainability of integrated participatory programs, such as PExHP program described earlier, and their impact on Work-SoC and sense of coherence. CPH-NEW only recently included the new Work-SoC scale developed by Vogt et al. (2013) in an All-Employee Survey, and so it is not yet possible to conduct longitudinal analyses to determine if Work-SoC changes over time. Efforts to validate the Work-SoC Scale for corrections workers may reveal the need for an adapted Work-SoC scale with items that are more specific to this work sector due to the peculiarities of corrections work. A sector-specific Work-SoC scale for corrections could perhaps be developed through participatory action research in which correctional officers would help define the key salutogenic aspects of this workplace.

The introduction of programmatic interventions is particularly challenging in corrections because of environmental constraints, strict adherence to policies and procedures, and the hierarchy of command and control described earlier. This places increased importance on gaining and maintaining internal sources of organizational support for any new initiative. In the case of the officer-led health mentoring program for example, we learned from separate focus groups conducted with mentors and mentees how crucial supervisory support was to program effectiveness. Help from supervisors was needed in scheduling regular sit-down meetings between mentors and their mentees at the very beginning of the mentoring process.

While instances where supervisory support was lacking could be considered a basic program training issue, another explanation is that supervisors withheld support for this program because they were unable to supervise the activities associated with mentoring that were necessarily conducted in private and remained confidential. This loss of a supervisory oversight can be characterized within a Behavioral Cybernetics model (Smith & Smith, 1987) as interfering with the social-relational tracking opportunities that are normally available to supervisors for all of the activities their subordinates are involved in.

In order to compensate for the inability of supervisors to track mentoring activities and the developing mentor–mentee relationships directly, organizational communications about the social-relational tracking dynamics of mentoring may need to be considered as substitutes, and may also serve to promote the organizational learning (Haims & Carayon, 1998) that is needed to establish the program. Possibilities here include periodically providing supervisors with examples of the salient topics being addressed when mentors and mentees meet privately, or to report officer health and well-being outcomes in order to demonstrate the value of psychosocial support gained through mentoring as a significant organizational innovation (Smith, 2002).

Another possibility is to regularly generate organizational communications about how a salutogenic program is evolving to meet organizational needs. Organizational communications like these in corrections may also serve to increase the number of stakeholders in these programs, a development with the potential to benefit program stability (Smith, Henning, Wade, & Fisher, 2014) as well as long-term sustainability.

Sense of coherence was originally conceptualized by Antonovsky to occur at the level of the individual but the growing number of research studies on emergent group behaviors (e.g., Furniss, Back, Blandford, Hildebrandt, & Broberg, 2011; McKendrick et al., 2014; Morgan, Fletcher, & Sarkar, 2013) and "collective efficacy" (Coultas, Driskell, Burke, & Salas, 2014) suggests the possibility that teams of workers could also possess a sense of coherence. If such a thing as "team sense of coherence" exists, it could play an important role in determining both team performance effectiveness and resilience. One implication for future research is that a new way of characterizing and assessing the three dimensions of sense of coherence at the team level would probably be needed because it is unlikely that team sense of coherence would be well represented by simply aggregating the sense of coherence of individual team members. The need for high-quality communication among team members, the extent that behaviors are coordinated among team members, and the degree to which team members support each other's health similar to what is assessed in the coworker dimension of MOHCA, may all play a role in establishing and maintaining team sense of coherence. Empirical research demonstrating the importance of team or group sense of coherence could help justify more comprehensive salutogenic interventions in the workplace, such as developing specific ways that teams can be efficiently trained or better organized to achieve a high level of sense of coherence.

The authors of this chapter claim no expertise regarding the psychology of inmates but can speculate that the application of salutogenic principles and approaches could benefit

inmates in important ways. Salutogenic interventions and programs geared to younger inmates may be particularly effective in regard to increasing their sense of coherence. It has already been suggested that correctional environments could be made more salutogenic for inmates, making it is possible for them to find their situation more meaningful, comprehensible, and manageable, and thereby empowering them over the long term to change their behaviors and help reduce recidivism (Dilani, 2001).

Another possibility that could be explored is simultaneously implementing parallel salutogenic programs for inmates as well as correctional officers. For example, correctional officers may find it very meaningful to help design a program to strengthen the sense of coherence of inmates who they interact with regularly, thereby also benefiting the sense of coherence of correctional officers involved. Inmates with a strong sense of coherence are likely to be better at handling the stress of being in a correctional institution, which could reduce the number of incidents where their loss-of-control leads to violent behaviors that place correctional officers, other inmates, and themselves at serious risk of injury. Thus, implementation of parallel salutogenic programs in corrections has the potential to yield synergistic salutogenic benefits.

Challenges for the Future

There is a pressing need for more researchers in occupational health and safety to explore salutogenic approaches to benefit the sense of coherence and health and well-being of correctional officers because the many stressors these dedicated public service workers must face on a daily basis can have a devastating impact on the quality and length of their lives.

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The Application of Salutogenesis in Healthcare Settings

Jürgen M. Pelikan

The Challenge of Integrating Salutogenesis into Health Care

Health care, or more correctly the "disease care system" (Antonovsky, 1996, p. 12), is a very specific and challenging area for applying salutogenesis. And for health or disease care, implementation of salutogenesis is quite a challenge as well.

What is the essence of these challenges of integrating these two health related fields? The health care sector still primarily follows a pathogenic paradigm. It intends to professionally manage illness by trying to cure, what is defined as a disease, or, if this is not possible, at least to offer care for chronic patients and palliative care. But the contribution of health care to public health, or health promotion more specifically, is still marginal. Reorientation of health services, as demanded by the Ottawa Charter (World Health Organization 1986), has not happened to a remarkable degree yet (De Leeuw, 2009; Wise & Nutbeam, 2007). There still is quite an unrealized potential in health care to be more preventive of disease and more protective and promotive of positive health.

Salutogenesis as defined by Antonovsky has been developed as a paradigm in opposition to this "pathogenic orientation which suffuses all western medical thinking" (Antonovsky, 1996, p. 13). Therefore, in principle applying salutogenesis to health care means to restrict the leading pathogenic orientation in health care practice (research and policy) and complement or change it by a salutogenic orientation in every day practice and research. This can only partly be established as an add-on of new routines, and partly has to be done as an add-in to ongoing practices, by re-orienting core processes of health care.

As health care and its quality discourse is dominated more and more by the dictum of evidence based practice, if salutogenesis is to be acceptable in health care, it has to demonstrate its evidence-based character. But salutogenesis, a partly normative concept, also has quite an unrealized potential for being more evidence based. Antonovsky himself stated, "in short, at the present time, the appeal of the full salutogenic model for those engaged in health promotion cannot be on the grounds of powerfully demonstrated efficacy in producing significant health-related change outcomes" (ibid., 16). The relevant question, therefore, is how far has this changed since Antonovsky wrote this statement?

Salutogenesis—the newer and more focused concept—has been introduced by Antonovsky into health promotion, an older and broader concept, field, and movement. As Antonovsky saw it, "the basic flaw of the field (of health promotion) is that it has no theory". And he proposed "the salutogenic orientation . . . as providing a direction and focus to this field". But he also believed, "the salutogenic model is useful for all fields of health care. In its very spirit, however, it is particularly appropriate to health promotion."(ibid., 18) Thus, health promotion in health care definitely has the blessings of Antonovsky. Therefore, we have to clarify how the salutogenic orientation or model and its related construct of sense of coherence can be integrated into health care, directly or via (re-)orienting health promotion in health care indirectly.

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What Does Salutogenesis Specifically Mean for Health Care?

In health care, the salutogenesis paradigm can be used in principle for two purposes: either to guide health promotion interventions in healthcare practice, or to (re)orient health

care research. For this, the salutogenesis paradigm offers specific concepts, assumptions, and instruments. Three quite different conceptual forms can be distinguished: a salutogenic orientation, a salutogenic model, and the construct of the SOC and a "methodologically respectable way to operationalize it" (ibid., 13). These three forms first have to be specified in more detail, to be applied later to the field of health care. For that, health care has to be understood as a complex of a strongly interrelated professional practice, with clinical research and supporting policy. Therefore, applying salutogenesis in health care successfully cannot just be done by introducing salutogenesis in health care practice, but must also include salutogenic clinical research, and change in underlying health care policy.

The first and most broad form of salutogenesis, a *salutogenic orientation* is described by three assumptions:

- "That the *human system (as all living systems) is inherently flawed*, subject to unavoidable entropic processes and unavoidable final death" (ibid.: 13). Therefore, the necessity of adaptation or coping with accompanying tension that may result in stress is universal and not the exemption.
- "A *continuum model*, which sees each of us, at a given point in time, somewhere along a healthy/dis-ease continuum" (ibid.: 14). Therefore, a dichotomization of people into healthy and sick is arbitrary and not adequate.
- The concept of *salutary factors* (or health promoting factors): "factors which are negentropic, actively promote health, rather than just being low on risk factors." (Antonovsky, 1996, p. 14). Therefore, risk *and* salutary factors have to be attended.

From these three assumptions follows implications for health promotion:

"A *salutogenic orientation*, as the basis for health promotion, directs both research and action efforts

- To encompass all persons, wherever they are on the continuum
- And to focus on *salutary factors*." (ibid.: 14)
- This "must relate to *all aspects of the person*" (ibid.: 14) instead of "to focus on a particular diagnostic category" as in curative medicine or also in preventive medicine, i.e., to include primary prevention or secondary prevention! (ibid.: 14)

Applying these assumptions and implications to health care practice would mean that:

1. Since a salutogenic orientation encompasses all persons independent of their position on the healthy/disease continuum, health care should not only just care for the health of its patients, but also has to take responsibility for the health of its staff and the health of citizens in the catchment area as well (while dichotomous classification of persons into those who have some specific disease or not, seems to be still unavoidable for doing curative medicine on patients!).

2. In relation to these three groups of stakeholders, not only their risk factors have to be dealt with or fought by health care, but also possible salutary factors have to be enhanced as well in curative, preventive, protective and promotive practice.

3. A holistic approach, including physical, mental, and social respectively ill and healthy aspects of a person, has to be taken into account in dealing with all people affected by health care.

In principle, to apply these demands on health care sounds plausible and rational. But to realize (1), a policy change of the mandate of health care is necessary, to realize (2), the traditional diagnostic and therapeutic repertoire of health care has to be widened, and to realize (3), a radical change of clinical outlook is implied. The last is especially difficult, since part of the spectacular medical success rests on focusing on a narrow bio-medical model.

The second form of salutogenesis is Antonovsky's specific and rather complex *salutogenic model* (described in Chap. 7 of Antonovsky, 1979). Within this model the concept of *generalized resistance resources* (GRRs) is introduced as "a property of a person, a collective or a situation which, as evidence or logic has indicated, facilitated successful coping with the inherent stressors of human existence" (Antonovsky, 1996, p. 15). Major psychosocial, genetic, and constitutional GRRs are specified within this model. But this model has not much been taken up by Antonovsky or other authors in later publications (Mittelmark & Bull, 2013)!

When using this *salutogenic model* in health care, the generalized resistance resources specified in detail in the model would have to be more adequately taken into account in health care practice and research. This makes much sense for health care and affords a more holistic and complex outlook and a widening of diagnostic and therapeutic methods applied.

The third most focused form of salutogenesis, the specific *construct of sense of coherence* (SOC), which has been introduced as a central factor in the salutogenic model of health, is defined as:

"a generalized orientation toward the world which perceives it, on a continuum, as comprehensible, manageable and meaningful. The strength of one's SOC, I proposed, was a significant factor in facilitating the movement toward health." This construct answers "what do all these GRRs have in common, why do they seem to work. What united them, it seemed to me, was

that they all fostered repeated life experiences which, to put it at its simplest, helped one to see the world as 'making sense', cognitively, instrumentally and emotionally." (Antonovsky, 1996, p. 15)

One way to interpret this is that Antonovsky introduces the SOC rather as a moderator or mediator of other determinants of health than as a specific further determinant of health. Compared to other familiar concepts from the *coping literature*, "it is the particular combination of the cognitive, behavioral and motivational which is unique" and, furthermore, "the SOC is not a culture-bound construct." "What matters is that one has had the life experiences which lead to a strong SOC; this in turn allows one to 'reach out', in any given situation, and apply the resources appropriate to that stressor." "The strength of one's SOC (as a dependent variable) is shaped by three kinds of life experiences: consistency, underload-overload balance, and participation in socially valued decision-making. The extent of such experiences is molded by one's position in the social structure and by one's culture …" (ibid.: 15). Two *instruments*/*tools* have been offered to measure the SOC, a longer 29-item SOC scale and a shorter 13-item version, but both are *not* suitable to measure the three specific sub-dimensions of the SOC (Antonovsky, 1993).

How can the SOC be introduced into health care? Being ill and becoming a patient in professional health care often is a rather threatening life experience for people and being a health care professional is a rather demanding kind of job. Therefore, using the SOC concept for making health care structure and culture as far as possible consistent, underload–overload balanced and participatory for patients, staff, and visitors would be an adequate and welcome application to make health care systems more salutogenic, generally. This is possible, since "social institutions in all but the most chaotic historical situations can be modified to some degree" (Antonovsky, 1996, p. 15). It even could be more feasible, effective and efficient to develop salutogenic 'standards' (Dalton & Mccartney, 2011) and make institutional contexts more salutogenic, than to try to directly enhance the SOC of large numbers of patients, staff, and citizens. Thus, patients and staff could be supported by health care organizations to experience their roles and tasks as comprehensible, manageable, and meaningful. That at least, would reduce avoidable stress, most important for people with a low SOC. More specifically, the SOC of patients or staff could be measured or screened, and their level of SOC be taken into account in treating or deploying them, even if this seems to be a rather far reached and also problematic stigmatizing kind of application. Even if Antonovsky assumed that one's SOC cannot be radically transformed, he left it open that the SOC could "be shaped and manipulated so that it in turn can push people towards

health" (Antonovsky, 1996, p. 15). Therefore, improving one's SOC or at least one's health literacy could become an explicit goal of chronic disease management.

In summary, salutogenic thinking has good potential to be applied to health care in relation to health promoting interventions for the health of patients, staff, and citizens, and in supporting health promoting structures and cultures of health care institutions for better everyday practice and policy.

Contributions of the Chapters of the Section

Salutogenic Architecture in HealthCare Settings

Jan A. Golembieski

In his salutogenic model of health, Aaron Antonovsky has included in his column on Major Psychosocial Generalized Resistance Resources "material" resources as number one. But what is meant by material resources? Antonovsky enumerates: "money, physical strength, shelter, clothing, adequate food, and the like" (1987, p. 107). Health care as well needs some kind of shelter and health and nursing care architecture has taken up, to a different degree, Antonovsky's ideas on salutogenesis. Most directly used in architecture and design have been the three subdimensions of the sense of coherence. Salutogenic spatial and socioenvironmental structures can support comprehensibility, meaningfulness, and manageability of life, which is steady coping with challenges, by intentionally offering specific and general resistance resources by these structures. The chapter offers evidence that aesthetic design in health care, especially hospitals, can improve health outcomes for patients. By its influence on the brain and the body, architecture can directly influence health. Thus, the international Academy of Design and Health has contributed to improvement in the quality of new health care buildings around the world. There seems to accumulate evidence that neurotransmitters react to environmental stimuli, and therefore react to design. Furthermore, has the concept of aesthetic impact on health outcomes been scientifically been tested with very promising results. In addition, detailed and concrete examples are given how architecture can support manageability, comprehensibility, and meaningfulness for patients. Even if by now the term salutogenesis may be overused and imprecisely used in architecture it can be said that salutogenesis has achieved the status of a respected and encouraged design goal. On this can be built in the future to bring salutogenic principles by newly developed more systematic methods into health care design. But to support

this also with decision makers, far more research on salutogenesis, including its effects on efficiency of health care and better integration of salutogenesis into architectural theory and teaching will be necessary.

The Application of Salutogenesis in Hospitals

Christina Dietscher, Ulrike Winter, and Jürgen M. Pelikan

Hospitals, in developed countries the center of curative health care in practice, research, and education, still have a dominantly pathogenic orientation. Therefore, salutogenic principles definitely have to offer to quality improvement of cure and care in hospitals. But salutogenesis also is a considerable challenge to be implemented in hospitals, and hospitals are challenging for health and salutogenesis promoters. The chapter first demonstrates how salutogenesis, if understood as a specific dimension of hospital quality, could considerably contribute to better health gain for patients and hospital staff. Second, drawing on a comprehensive literature search, it is highlighted which aspects of salutogenesis in relation to hospitals already are covered in descriptive and intervention research focusing on patients (and family members), staff, and the hospital as an organization. Topics included are: concepts of salutogenesis referred to, the SOC in relation to physical symptoms; the SOC in relation to mental symptoms, quality of life, and patient satisfaction; the SOC adjustment to disease, self-management, and adherence to treatment; the SOC and social outcomes; the SOC and positive health; the SOC in relation to gender, age, and socioeconomic status; the SOC in relation to patients' family members; salutogenesis in general and the Salutogenic Model; salutogenesis and impacts of the hospital setting on patients; using the SOC as a diagnostic tool; adapting treatment schemes; supporting self-care and self-management; supporting caring relatives; improving the impact of hospital functioning on salutogenesis; salutogenesis for different health care professions; and implications for occupational health in hospitals.

An overview on the application of salutogenesis in Health Promoting Hospitals, one of the WHO-initiated setting-oriented health promotion networks, also is provided.

Needs for further research are outlined focusing mainly on the specific role of the sense of coherence as predictor, mediator, or moderator, by better conceptual clarity and more complex research designs, on the interlink between the SOC and other aspects of health than subjective and mental health, on the impact of hospital functioning and

organizational interventions on salutogenesis or the SOC specifically, and on the applicability of the SOC as measurement to assess the outcome of health promotion interventions in hospitals.

The Application of Salutogenesis in Mental HealthCare Settings

Eva Langeland and Hege Forbech Vinje

This chapter also deals with salutogenesis for another specific and growing group of patients. Antonovsky's core concept of sense of coherence has been shown to be more closely related to mental health than to physical health. Thus, the application of salutogenesis on patients in mental healthcare settings is rather obvious. This firstly holds for the principal paradigmatic understanding of mental health problems or disorders as a challenge for patients which depends on the individual's personal way of experiencing it, by their health care professionals. Second, it can result in specific forms of salutogenic therapy, for example, talk therapy groups that aim to support positive salutogenic identity building as a specific resistance resource and to improve sense of coherence of patients by specific offers of social support. This approach emphasizes to increase participants awareness of and confidence in their potential internal and external resources and possibilities to cope successfully and effectively manage tension. Third, as in all health care the material and social setting itself should be designed by salutogenic principles as empowering by being comprehensible, meaningful, and manageable. This especially is important for more sensitive and vulnerable chronic mental patients who also experience longer stay in mental health care organizations.

Some experimental evidence for the feasibility and effectiveness of this kind of therapy is offered, while systematic intervention research on this application of salutogenesis in mental health care is still rather limited.

The Application of Salutogenesis in the Training of Health Professionals

Hege Forbech Vinje, Liv Hanson Ausland, and Eva Langeland

How work is done in health care organizations as professional bureaucracies or expert organization is considerably

determined by the professional outlook of health care workers and this again by their professional education. Therefore, if salutogenesis should be used in health care to a remarkable degree, this will depend on its integration already in all stages of professional education. Furthermore, since many health care institutions do not only offer cure, care, and education to their patients, but also play an important role in the education to their staff, salutogenic training of professionals for salutogenic treatment of patients is at stake within many organizations of the health care system. This chapter offers, based on research and teaching, principles and examples for salutogenic designs of training programs for health professionals at different levels, from bachelor to continuous education. Principles highlighted include salutogenesis not only as a body of knowledge, but also as a continuous learning process, as a way of working and of being. An aim for this kind of education is that the student manages herself in a salutogenic way, by developing the capability called 'self-tuning,' a process of habitual self-sensitivity, and reflection and mobilizing of resources to maintain and improve one's own health. Thus, the precondition to expect from a health professional to assist patient's in good self-care is that the health professional has acquired a 'salutogenic capacity' first for herself. And this has to be the outcome of salutogenic professional training that uses salutogenic principles on the educational process itself and by that supports personal development and experiential learning of the participants. How that can be done in practice the chapter demonstrates by three more detailed examples, teaching salutogenesis to health promotion generalists, teaching group leaders of salutogenic talk-therapy groups, students practicing participatory methods the salutogenic way.

The Application of Salutogenesis in Vocational Rehabilitation Settings

Monica Lillefjell, Ruca Maass, and Camilla Ihlebaek

Rehabilitation services are more closely and directly linked to maintaining and regaining positive health lost by illness and by pathogenic side effects of health care than provision of cure or care. There even exists some professional understanding that rehabilitation should start with the beginning of treatment and be integrated into treatment processes and not just follow after discharge of patients. But even the WHO definition of rehabilitation has a pathogenic bias by focusing on disabilities of people or on disabled people and not addressing their abilities explicitly, even if rehabilitation is

defined as enabling "for optimal physical, sensory, intellectual, psychological and social functioning". Therefore, salutogenesis still has to offer something and has an added value to rehabilitation as a supporting intervention for recovery processes. In addition, rehabilitation itself can be seen as a process where participants have to deal with considerable challenges at biological, psychological, and social levels and their coping will be influenced by the existing level of the participants' sense of coherence.

Within the wider field of rehabilitation this chapter has a specific focus on vocational work-oriented rehabilitation which is a combination of medical, psychological, social, and occupational activities with the goal of enabling timely return to work after sickness absence. For that the chapter highlights how salutogenesis can be related to the design and implementation of vocational rehabilitative services. A summary of descriptive and intervention research is given on the impact of the SOC as a moderator on processes and outcomes of rehabilitation programs and on the influence of these programs on the development of the SOC, which shows that there is empirical evidence for both kind of effects. Recommendations for further research with more complex longitudinal designs are given, but the greatest challenge in the future will be not only just strengthening *individuals* by salutogenic rehabilitation programs, but also assessing and influencing problematic challenges of work place *environments* by these programs.

The Application of Salutogenesis to Aged and Highly Aged Persons: Residential Care and Community—Dwelling Settings

Viktoria Quehenberger and Karl Krajic

This chapter focuses on a specifically vulnerable group of aged and highly aged patients, who have long and rather comprehensive contacts with health care institutions of long-term care, either in residential aged care or in community dwelling. Therefore, it is well accepted in the literature that a salutogenic orientation and health promotion measures could contribute to the quality of life, well-being, and health of this group. Furthermore, a good sense of coherence can be considered as a positive resource for coping with the physical, mental, and social challenges and transitions related to aging.

But the state of *descriptive* research on salutogenesis focusing not only on residents but also somewhat less so on community dwellers is still scarce and has mostly been conducted in few countries. Different subjective and objective health outcome measures have been used on the two

groups, but scarcely more complex theoretical assumptions have been researched. There is research on determining, mediating, or moderating effects of the SOC on health outcomes, but results are still diverse. There also exist studies exploring stability of sense of coherence in older age, but due to their cross-sectional design their results have to be interpreted with caution.

Concerning *intervention* research only "very few studies have specifically applied salutogenic principles to promote positive health among older people." Mostly studied were consequences of physical activity interventions which had positive effects on sense of coherence and well-being indicators. One study also showed an increase of sense of coherence by psychotherapy.

In light of this scarce research situation, the authors make recommendations for further research in this relevant and growing area of health care which should make use of better clarified theoretical assumptions and hypotheses with more complex comparative cross-sectional or even better longitudinal designs and more elaborated measures for GRRs and SOC. Furthermore, it has to be dealt with one of the major limitations of existing research, where aged and highly aged with cognitive impairment have mostly been excluded from the research.

The Application of Salutogenesis in Health Development in Youth with Chronic Conditions

Isabelle Aujoulat, Laurence Mustin, François Martin, Julie Pélicand, and James Robinson

This chapter uses the concept of salutogenesis for a very specific but also growing group of patients, adolescents or young adults with a serious chronic condition. This situation creates a specific challenge not only for the young people in question, but also for their therapists and treating health care institutions as well. While all adolescents have to cope with the challenge "to establish a continuous and valuable sense of self" in a phase of transition, adolescents with a chronic condition have to do this with a particular handicap. They have to integrate their chronic condition into their identity and

to build up specific resources for adequate self-care. From their parents and health care professionals they need comprehensive support. The chapter reviews literature on how Antonovsky's sense of coherence construct has been demonstrated to relate to important medical and psychosocial outcomes like adherence and self-care, general health behaviors, perceived health, quality of life and general well-being, and sense of self and identity. Based on the existing evidence, more systematic implementation of salutogenesis into practice for young people in health care is advocated for.

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Introduction

In recent years, the term 'salutogenic' has become a buzzword for marketing architecture for health and nursing care. The term was coined to describe a model for socioenvironmental influences on health, but in the designers' hyperbole it now rarely means more than fuzzy intentions to create restorative environments by providing views that represent nature: whether it be designed parkland, grassy areas, views of the sky or even video representations of these things. The term is thus bleached of meaning. The design industry needs a theory to establish whether or not views of nature are likely to be restorative on a case-by-case basis, and perhaps more importantly, to reach beyond this axiom and locate other ways to design and improve restorative environments. The marketer's sense that salutogenic theory is a powerful tool for understanding the impacts of the design process on the health and illness continuum is well-placed; as Antonovsky suggested, salutogenesis could be the only comprehensive theory of health promotion (1996), something the industry needs for the design process itself, not just for marketing spin.

Substantial evidence shows aesthetic design changes in healthcare settings can improve health outcomes for patients. A number of theories have been offered to explain these effects—but most of them are limited to the specific stimulus under the microscope of the theorists. Examples include an evolutionary hypothesis to explain the influence of 'views of nature' (Ulrich 1991), and the ecological theory of Lawton and Nahemow (1973), which argued that there is a 'sweet-spot' to be found in a trade-off between designing for comfort and designing for mental and physical challenges. Others argue that the most important issues for health in design are cleanliness and pathogen control (Dancer 2004). Lighting, soundscape design and things like wall paint colour have also been considered (Hurst 1960; Vaaler, Morken, & Linaker 2005), along with seating layout in psychiatric settings (Bitterman 2013; Sloan Devlin 1992).

While these theories are all important to hospital design, they ignore the elephant in the room—that architecture can be psychologically manipulative, for better or for worse. Architecture does this by providing a narrative context that affects a person's behaviour, neural and endocrine systems, and through its influence on the brain and the body, architecture can directly influence health (Golembiewski 2016). Antonovsky's salutogenic theory provides an accessible overarching logic for determining these effects in design (Golembiewski 2012b).

Salutogenic theory is not a perfect model of health (Mittelmark & Bull 2013), but as theory, it does have a scope and perspective that other ways of understanding health lack (Antonovsky 1996). Salutogenesis is a way of understanding the entire spectrum of wellness and illness, regardless of specificity and detail. In other words, it provides an overarching narrative structure that transcends the individual differences between people, and the differentiation between diagnoses, circumstances, environmental variation and so forth. Salutogenic theory is thus useful for 'broad-stroke' approaches to grappling the well-being and health/illness spectra, and as such, it is useful for managing indirect, complex, obscure or unknown factors in health conditions (this complexity typifies the health influences of the physical environment). Because Salutogenic theory has this higher-level validity that makes sense beyond the specific findings of particular experiments and design interventions (Strümpfer et al. 1998a; 1998b), it provides a basis for informed decision making in the absence of specific knowledge, or whenever circumstances are too complex to suggest easy solutions. Understanding this, Dilani (2006, 2008) and the International Academy of Design and Health (which he chairs) has actively promoted the theory to industry. The results have been a rapid improvement in the overall

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quality of new healthcare buildings around the world, and while this is very welcome, industry lacks the nuanced understanding of the theory needed to bespoke and expand the scope of salutogenic interventions.

Following from the above, this chapter discusses how salutogenesis can be, and has been, applied to healthcare architecture.

The sense of Coherence

Salutogenesis proposes that good emotional, psychiatric and somatic health is maintained through a dynamic ability to adapt to life's changing circumstances. The opposite is also true—forces that prevent the ability to adapt exert an aetiological influence on illness. One 'succumbs to illness', when demands exceed one's capacity to cope with them. So a germ on its own is insufficient to cause a disease—it needs to be cultured in an environment that has deficient capacity for resistance (Antonovsky 1972). Models that accept 'multiple causation' typically describe the forces that cause maladaptivity as 'stressors', a grab bag of influences that includes everything from joyous events to life's tragedies and banal concerns (Antonovsky 1987). In effect, everything can be considered a stressor, making stress a useless concept. The forces at work to improve adaptability, on the other hand, are specific enough to allow practical, buildable and highly bespoke solutions. These forces have been labelled a 'sense of coherence', also known as SOC (Antonovsky 1979).

The sense of coherence is the sum of all generalised resistance resources (or GRRs—hereafter 'resources') minus all generalised resistance deficits (Antonovsky 1987). Resources fall into three basic (but interrelated) domains—those that enhance comprehensibility, those that enhance manageability, and those that enhance meaningfulness. Resistance deficits (GRDs), on the other hand, are the ubiquitous challenges to these resources. Resistance deficits are entropic, meaning that without a positive sense of coherence thrust, resistance deficits exert a continuous disintegrative force, allowing illness to overcome a person (Antonovsky 1996). With the total failure of manageability, death ensues, unless the most basic support for manageability is delegated to intensive care systems.

When one is unable to adapt to circumstances and experiences, physical or mental health will 'breakdown' (Antonovsky 1972, p. 64). But by focusing on the sense of coherence and on resources, a scaffold emerges that can be readily applied to health facility design. Sense of coherence-supportive design can help liberate the resources that enable resistance to illness and reduce the disintegrative forces that cause maladaptation in the first instance.

The Generalised Resistance Resources

'Comprehensibility' is a person's ability to make sense of one's life narrative, one's context and current circumstances, and without this fundamental knowledge, people have little capacity to make the most of circumstances or negotiate life's challenges (Golembiewski 2012b). After all basic needs (manageability) are met, the desire to understand circumstances in order to make the most of them is essential. This is the essence of comprehensibility.

'Manageability' is a person's ability to manage day-to-day physical realities, like paying bills, staying warm, dry, clean, rested and nourished and other maintenance of their physical lives. At a minimum, it serves the basic requirements to maintain homeostasis: to maintain body temperature, blood glucose, hydration and other critical somatic concerns (Golembiewski 2012b).

'Meaningfulness', according to Antonovsky (1979) and Frankl (1963), is the foundation of the desire to live. It is meaningfulness that gives life forward thrust—the will to resist the entropy of illness and death's inevitability, and as such it is possibly the most important of the salutogenic resources. Meaningfulness is also the most elusive because meaning is difficult to define and is highly personal. Meaningfulness is found in the intensity of personal connections, responsibilities and desires with the outside world: 'Profound ties to concrete, immediate others … and between an individual and his community are decisive resistance resources' (Antonovsky 1972, p. 542). People find meaning in different social groupings, in different causes and concerns, and often disagree wholeheartedly about how concerns should be prioritised. Yet, it is in these distinctions that people find the basis of a sense of identity (Frankl 1963; Searles 1966). Without meaningfulness, people find themselves utterly bereft of meaning and of any desire to act (Searles 1960, 1966).

The Biochemical Response to Design

Both animals and people behave radically differently when threatened and when they are happy (Calhoun 1970; Isovich, Engelmann, Landgraf, & Fuchs 2001; Salmivalli 2001). They behave more accommodatingly when they are elated with lofty emotions such as awe. These emotions are not superficial but have real and long-lasting implications (Rudd, Vohs, & Aaker 2012). The science is relatively new, and requires far more research, but it appears that a number (if not all) of the neurotransmitters react to environmental stimuli, and therefore react to design (Golembiewski 2016). Acetylcholine, for instance, moderates balance, homeostasis, muscular tone and most of the things we

associate with comfort—body warmth, the senses of touch and hunger (Changeux & Edelstein 2005). Light is thought to moderate serotonin and the hormones on the serotonergic pathway such as melatonin (Rao et al. 1992). In turn, these hormones have an influence on circadian rhythms, control of inflammation and among other things, the mobility of gallstones. The other neurotransmitter that can be highly reactive to environmental stimuli is dopamine (Koppisetti et al. 2008), and this neurotransmitter is the one that's most closely associated with the emotions.

Dopamine is interesting because it is directly implicated in many mental illnesses (Howes et al. 2013). Dopamine has strong connections in the limbic area of the brain (Floresco, Blaha, Yang, & Phillips 2001), an area characterised as the centre of both narrative cognition and emotional balance. The hypothesis is that dopamine mediates the intensity of our experience of stories. These stories are composed from information that is gathered from the environment around us by the hippocampi (which moderate story structure) and the amygdalae (which moderate ipseity: the sense that a story is about me) (Le Hunte & Golembiewski 2014). Unfortunately, when people are mentally ill, and their dopamine is deregulated, they may suffer too much intensity for trifles, and too little in the face of important events.

The hypothalamus, another limbic organ, works like a switch: when the other organs signal that the emergent story indicates danger, the hypothalamus switches all the time-consuming, thought intensive, creative and considered parts of the brain off, and instead switches the automatic and instinctive systems on. The hypothalamus also triggers the endocrine system to go into a kind of emergency mode, short-circuiting the normal endocrine cascade. Cholesterol is blocked from being reprocessed into oestrogen, progesterone, testosterone and other desirable and essential hormones as it normally would. Instead, cholesterol remains in its raw forms, ready to clog the vascular system (as this is a useful first line defence against bleeding or heart failure). Along with this, arginine vasopressin, corticotropin, cortisol and other hormones that are important in physical emergencies are released. These hormones dictate much of how we feel on an emotional level, but they more than just that: they protect the body from famine, dehydration and blood-loss, for example. However, just as we do not always need to feel panicked or angry, most of the negative responses these hormones trigger are redundant when the environment is physically safe or when health-building is an objective. After long-term exposure, all of the negative hormonal responses we see here are directly associated with the epidemiology of 'lifestyle disease'. On the other hand, stories that 'look good for me'—especially if the associated experiences are awe-inspiring, enable the rostral dopaminergic pathway to open, and with it a whole set of desirable behaviours and endocrinal effects, which feel good and aid recovery (Golembiewski 2012b, 2014a).

Aesthetics, the Built Environment and Health

For millennia humans have customised their accommodation as a resource to protect against danger, discomfort, wildlife, social threats and the deleterious effects of weather. Architecture's role in these protective purposes is fundamental. However, the supportive effect of architecture is not only physical, but psychological too—if people cannot find respite from the pressures of life at home, the resulting compounding mental and emotional strain may be enough to cause debilitating mental illness, possibly even without an underlying biological or genetic dysfunction (Golembiewski 2013). But all shelter is not equal: even once we have achieved the basic need for shelter from the weather, the wild and other humans, we continue to customise the environment on an aesthetic level, in what appears to be an attempt to make the environment better on a psychological level. And the evidence is that such efforts are rewarded.

The idea that aesthetics have any impact on health (and even on mortality) appears to be superstitious and occult and is thus not nearly as widely accepted as it should be (Golembiewski 2016). The concept of aesthetic impact on health has been scientifically tested thousands of times, including dozens of studies against a null hypothesis—a statistical method used to demonstrate causality. In 2005, a systematic review located and analysed 30 peer-reviewed articles that showed this effect to be significant and reliable (Dijkstra, Pieterse, & Pruyn 2006), with findings that sometimes defy belief—for example, 30.8 % faster recovery and 38 % lower mortality were found when patients were given sunlit rooms for psychiatric disorders (Beauchemin & Hays 1996, 1998).

From a salutogenic perspective, such findings are of immense importance: when people are healthy they demonstrate a theoretical surplus of resistance resources, so aesthetic improvements are redundant, but when people are ill, they suffer in the balance between deterioration and recovery, so any genuine influences (whether for better or worse) should reflect in outcomes.

There are a number of relationships that our bodies have with the outside world. Firstly, there's the physical relationship: the built environment is replete with restrictions—like fences and walls, and opportunities like pathways, bridges or windows and these determine many of the choices we make. Some of these are insignificant—for example, there is little phenomenological difference between a left or right turn, even though they are opposites. But many physical restrictions and opportunities moderate our behaviour, and are intended to do so. As such, they are an important target for policy design initiatives that aim to create healthy environments—for example, cities around the world are compiling 'fit city' design guidelines to encourage people to take the stairs, and leave the car behind, and walk or cycle

instead (City of New York 2013; Jackson & Sinclair 2012). Physical interventions like these are often thought to be the most the built environment can do to improve health.

But when people are recovering in a hospital, 'fit city' initiatives are of little use. Indeed, the one place where lifts and nearby parking is really useful is in a hospital, because when people are sick, it is not the time to impose an exercise regime. In the impressive results reviewed by Dijkstra et al. (2006), none of the health improvements of persons in healthcare institutions were because the hospitals had more steps or longer corridors. The causal factors were aesthetic—they were psychological rather than physical.

As pointed out early in this chapter, the traditional lens for understanding the impact of the built environment on health is focused on how well it provides basic functionality and shelter. This is especially true in healthcare, with its top requirement being that the built environment support more efficient patient management, more reliable clinical procedures, better infection control, etc. The main point of this chapter is to demonstrate that this is a very low bar. Salutogenic architecture has the capability to also support enhanced *patient* manageability, comprehensibility and meaningfulness, and their collective synthesis: the sense of coherence, in other words to help a person through the natural process of recovery.

Architecture and Patient Manageability

The traditional healthcare environment addresses pretty much only *manageability*, one of the three GRRs. So, if there is any context that is well understood in the healthcare setting, it is planning for manageability. Hospitals make environments more manageable for staff via centralised food and cleaning services and more manageable for patients through intravenous drips, incubation, heating, cooling, catheterisation, dialysis, ventilation and cardiopulmonary bypasses, etc. In a hospital, it is striking just how much a patient's life can be maintained by others—indeed, patients do not even need to breathe for themselves. It is hardly a stretch to say manageability is traditionally the only organising principle when designing healthcare facilities: thus better patient oversight, better infection control, more efficient catering, laundry, pharmacy, filing and even parking are prioritised over whimsical things like aesthetics.

At its most basic, the architect's role in improving manageability in the healthcare milieu involves improving the delivery of all the services that the hospital already considers. In hospital briefing jargon, this is 'the functionality' of the unit. But an architect armed with an understanding of salutogenesis can go much further; paying attention to how design can enhance the patient's resources for recovery

(Golembiewski 2010). Nowhere is this more important than in psychiatric facilities—especially for long stays. These facilities are routinely designed with centralised staff stations, both to improve manageability for the staff, and also to completely disempower patients, whose actions are considered bad, irritating for staff and even dangerous (Foucault 1977). To prevent this loss of independence and the subsequent atrophy of essential life skills, MAAP (an international architectural firm with a reputation for healthcare design innovation, where the author worked until mid-2016) routinely does away with central staff stations, thereby turning the locus of control from the staff back to the patients. To enable alternative opportunities for patient-monitoring that are discrete and democratic, we identify informal places where nurses can sit and observe most of the goings on in the unit (Golembiewski 2014a) (Fig. 26.1).

Architecture for Patient Comprehensibility

In contrast to the traditional approach to health facility architecture, salutogenic design aims to enhance not only just manageability for the institution, but also the manageability, *comprehensibility* and meaningfulness of the patient.

Comprehensibility is the capacity to understand and negotiate the contexts we find ourselves in. As Donne observed in 1624, hospitals have a long tradition as places where such understanding is delegated. In a hospital, a patient is rarely expected to understand what they are suffering from or how the service is going to make them better. When a patient enters a hospital, a receptionist or triage nurse will tell them where to go and it is the doctor's responsibility to know what was wrong with them and how to treat their affliction. But this is changing. Patients now have tools at their disposal for self-diagnosis and treatment, and this awareness has become essential for the basic maintenance of good health and for identifying illnesses early (Parker 2000).

After an era of neglect, architecture has now begun to provide for patient comprehensibility in a meaningful way. For example, as the carefully crafted patient journeys in the Centre for Respite and Recovery (Fig. 26.2) illustrates, the centre is truly designed so patients can rest assured that there could be no better place to recover, and this knowledge does assist recovery (Golembiewski 2016). A much greater emphasis on intuitive way finding is now *de rigeur*, and this, in a more minor way helps patients to help themselves. Architecture now looks to outdoor views for global orientation, identifiable urban street patterns and the use of distinctive landmarks like sculptures. But comprehensibility in a salutogenic sense is far more than just

Fig. 26.1 Psychiatric centres designed without centralised staff stations turn the locus of control from staff back to the patients. In these facilities, everyone has good observation, not only the staff. This is an essential response to recovery centred models of care. Image courtesy of the Author and MAAP
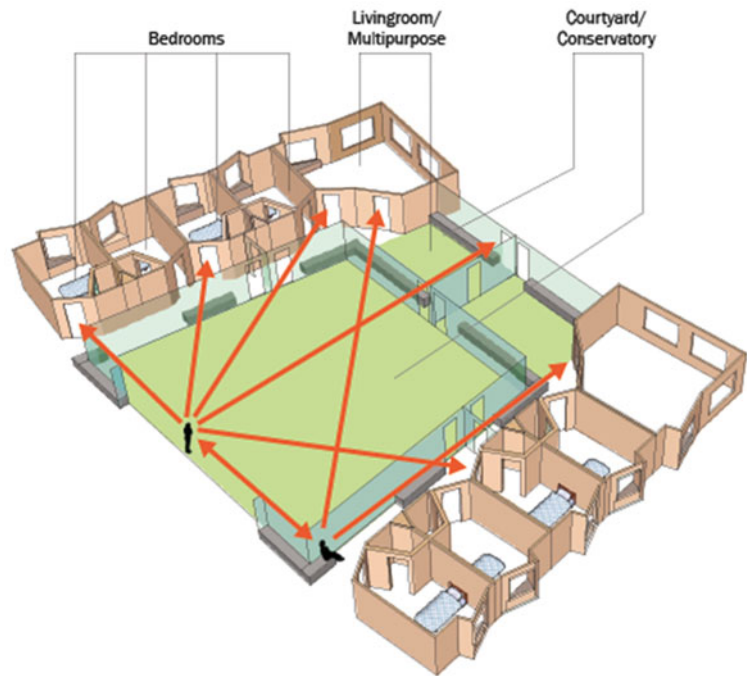
Fig. 26.2 The plan of The Centre for Respite and Recovery (MAAP, Aecom and Makower Architects) has an urban street-grid like plan to enable intuitive way-finding, it is littered with gardens, has horse stables and a lunging arena to train them and an aviary also, where patients can keep and train birds. These affordances are all designed to maximise opportunities for self-empowerment and to generate the feeling there is a high probability that things will work out for the best. Image courtesy of MAAP and the Author

knowing where to go or knowing about medical conditions. More importantly, comprehensibility is used to enhance or reinforce a person's efficacy in their endeavours. In this centre, patients are given the opportunity to train horses and birds in order to develop skills and demonstrate evidence personal success.

The question then is, how does healthcare architecture enhance our sense of personal narrative—the sense we make of the context we find ourselves in? Even the most fundamental axioms of understanding (and therefore of comprehensibility) are structured in narrative terms: a premise, a process and a conclusion. The most important aspects of

comprehensibility in healthcare settings revolve around the narratives of a patient's sequential experience while negotiating 'the patient journey' (or as it was called in the beaux arts tradition, the *marche*).

The narrative sequence has the capacity to foster a sense of control and personal security, but without sufficient care, our natural inclination to perceive narratives and read the environment can also destroy confidence. A patient can all too easily discover themselves on a set from a medical drama: on a bed, surrounded by blue vinyl curtains, next to a machine with a red flashing light. In the medical drama, the setup spells inevitable disaster, and so the architectural vocabulary takes the same hue. Shiny vinyl floors, windowless rooms, machines with flashing lights, blue curtains and strip lighting are all therefore to be avoided.

Instead, the Centre for Respite and Recovery is a psychiatric facility design that would be rejected by TV set-finders (Fig. 26.2). All bedrooms are private, they have king-sized beds, they open out onto leafy gardens, the lights are dimmable, the windows and doors are usable, there are timber and stone finishes and high coffered ceilings and the colours and textures are rich and non-institutional. The language used extends to the typology of the building: it reads as a resort or a fancy hotel—a place where the promise of respite and recovery rings true. This building was purposefully designed to give patients the 'dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected' (Antonovsky 1987, p. xiii). As we see from the Centre for Respite and Recovery, it is well within the designer's capacity to use salutogenic principles in order to help a patient feel secure (Fig. 26.3).

Architecture for Patient Meaningfulness

". . . how little and how impotent a piece of the world is any man alone?" (Donne 1624)

Because meaning in life is so important for one's sense of coherence, it should be a pivotal concern for architects when designing for better healthcare. But meaningfulness has an intrinsic relationship with the real-world outside the facility: people's most significant thoughts are likely to be for animals, the global ecology, for religion, politics, sport, for family, friends, for music, art, literature, perhaps the exercise of power. Hospitals are not ideal places to affirm meaning, because patients are physically removed from most of that which gives life meaning: they are full of Kafakaesque endless corridors, broken promises ('you'll feel better soon; you might feel a little uncomfortable . . .'), false alarms, of institutional aesthetics and inconsistent

care (Wistow 2012). Hospitals also create social isolation by restricting the visiting hours of friends and family and by forbidding pets.

Yet, the healthcare architect can still design to enhance meaningfulness for patients. People very rarely actively search for meaning, but the right context might inspire a search, or at least enrich one. Khoo Teck Puat Hospital in Singapore provides an abundance of planting, thereby encouraging an explosion in wildlife in the public areas— they even have a butterfly register (Fig. 26.4)! This is intended to inspire patients with the wonders of the world. The Royal Children's Hospital has a meercat enclosure for similar reasons (Fig. 26.5). At the Centre for Respite and Recovery, patients tend horses and birds; there are also really good facilities for visitors (especially for visiting children), so patients can be expected to receive happier and more regular visitors, thereby promoting a sense of belonging (Smith, Golembiewski, Hunyh, Raz, & Wu 2014). In Wilcannia Hospital, which caters for especially for an indigenous population in Australia, architect Dillon Kombumerri designed patient accommodation on the ground floor, with wide verandas looking out into native landscapes to allow space for visits from the tribe (typically people arrive in large numbers rather than individually) and to let patients know that their tribal mores are respected and acknowledged (Fig. 26.6).

Discussion

Since Dilani (2006) brought the concept of salutogenesis to healthcare design, he has led the International Academy for Design and Health to promote salutogenic theory in healthcare architecture throughout the world, even offering an annual prize for excellence in salutogenic architecture. As a result, the concept has grown in popularity and has become a buzzword in the healthcare architecture procurement chain. The result is that salutogenesis is now a respected and encouraged design goal. The downside is that the term 'salutogenic' is overused by architects, most of whom do not know how to drive their schemes with a salutogenic methodology, and do not even have a solid grasp of what salutogenesis means. As a result, at times, the term can mean nothing more systematic than 'friendly-looking' or 'leafy'. This is not to criticise those designs—after all, 'nice looking' and 'leafy' are often the outcomes of more systematic salutogenic approaches, but there is so much more unexplored potential in the concept. There are now systematic methods to bring salutogenic principles into healthcare design (Golembiewski 2010) and emergency care (Golembiewski 2012a). And when adopted

Fig. 26.3 Sculptures and bright colours to provide a sense of play and to serve as landmarks for orientation in Lady Cilento Children's Hospital. The architects (Conrad Gargett & Lyons Architects) hope these innovations will improve the salutogenic sense of comprehensibility. Image by Christopher Fredrick Jones, courtesy of Conrad Gargett and Lyons

Fig. 26.4 The patient spaces at Khoo Teck Puat Hospital (CPG Consultants, architects and Peridian Asia and landscape architects) are environments for butterflies and other wildlife, in the hope that the abundance of nature will inspire patients and therefore enrich meaningfulness. Image courtesy of CPG Consultants

Fig. 26.5 The ambulant area in the Royal Children's Hospital (Bates Smart, Billard Leece and HKS) has a habitat for meercats to develop a sense of meaningfulness by keeping children engaged in enquiry about the world around them. (Photo by John Gollings, courtesy of Bates Smart)

Fig. 26.6 For the Indigenous people of Australia, meaning is derived from a connection to the land and tribe. For this reason, patient rooms in Wilcannia Hospital are all on the ground floor looking out into the landscape and have a shared veranda that is big enough to accommodate large numbers of visitors. Architects: Dillon Kombumerri in Merrima, an office of the NSW Government Architect (Image: Brett Boardman)

appropriately, salutogenic architecture is invariably exemplary. Some of these projects even reach beyond the accepted evidence basis for health-promoting design (generic factors like views of nature and allowances for natural daylight) and explore the realms of story-making, psychology, neuroscience and endocrinology.

Challenges for the Future

Salutogenic principles are a practical way to integrate the dynamics of health and experience with architecture. But for people in praxis, challenges abound: in most countries the

procurement systems are conservative—led by precedents and guidelines, and controlled by stakeholder groups who struggle to save capital, often with little regard for on-going healthcare costs. The decision-makers are usually poorly informed or simply do not believe in the capacity of aesthetics to influence health. To add to this, the pathogenic model of health is dominant in the healthcare sector, and that has enormous inertia, which will not reorient towards health promotion easily. As a result, stakeholder groups usually value functional efficiencies, traditional finishes and approaches (such as central staff stations) over what they may consider risky new inventions. Although some groups (particularly in the private sector) are beginning to understand salutogenic values, when faced with shrinking budgets, tight deadlines, constricted sites and profit-oriented project managers, even they will lack courage to go beyond landscape planting. As a result, the journey to discover that nature is just the tip of the iceberg can be difficult.

To enable the blossoming of salutogenesis in healthcare architecture, far more research—practice-based, theoretical and empirical, must be published and disseminated, and ideally through open-access journals, because architects in practice seldom have the funds to build libraries if they must pass the pay walls that protect so much knowledge today. In addition, salutogenesis should be given a place in the canon of architectural theory so it will be taught to students. The potential for salutogenic design to reduce healthcare budgets and improve health on a population level is impressive, but it must be tested and retested so the arguments for salutogenic approaches are as watertight as research for new medications.

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Introduction

Hospitals are traditionally characterized by an orientation to diagnosing, curing, and caring for severe illness episodes in *patient* careers (and increasingly also for the continuous care for chronic patients at repeated points of contact); hospitals are often life-saving. However, it is no exaggeration to say that hospitals are in many aspects also highly pathogenic. Not only is it the very core business of hospitals to deal with the results of pathogenic or entropic processes in patients (possibly with obstetrics as one exception). But the hospital as a setting also contains specific pathogenic dangers and risks (e.g., nosocomial infections, medical errors, and hospitalization effects), and radical life-saving interventions often need to be performed that have themselves a certain pathogenic potential. Therefore they need to be precisely targeted, such as an operation or chemotherapy, if they are to produce more benefit than harm, and need to be performed by highly specialized and skilled personnel. For this reason, there is a natural knowledge and power divide between healthcare staff (especially doctors) and their patients, with patients being often resigned to a rather passive role. Health researchers have repeatedly stressed the need to actively include patients in healthcare decisions and processes in order to achieve optimum outcomes (Coulter & Ellins,

2007). In light of the ageing of populations and the increasing proportion of patients with long-term chronic conditions, this demand appears more timely than ever.

Informed consent and shared decision-making movements are one reaction to this problem. They demand that patients need to be informed about and consent to treatment options. Yet this approach is often more a safety belt for medical staff, preventing them from being sued in the case of negative treatment outcomes, rather than a real integration of the patient in decision processes. In addition, the currently predominating culture of prevention (compare Dietscher & Pelikan, 2016) raises the fear to be sued for preventable medical errors. According to estimates, such errors affect one in ten hospital patients to some degree. In reaction, healthcare personnel recommend medical tests, and perform treatments, that are often not necessary. Gigerenzer and Gray (2011) call this approach 'defensive medicine.'

Hospital economics often have similar effects. Especially when financing mechanisms are performance-based, medical interventions are sometimes performed according to business plans rather than to meet patient needs (resulting in huge differences in the numbers of medical interventions that are performed in different countries and hospitals), often causing unnecessary risks to patient safety. Furthermore, medical interventions are often performed with a rather short-sighted perspective, not considering long-term implications for the quality of life. When discharged from hospitals after ever-shorter stays, patients often find themselves left alone with, and overwhelmed by, the challenges disease-specific self-management can pose.

Hospital staff, too, are confronted with many health-related stressors. They are amongst the professional groups with the highest health risks (Eurofound, 2012). These include the exposure to biological, chemical, and nuclear agents, physical strains from lifting patients or working in strenuous postures (such as in surgery), the need to perform shift work, having to cope with a high and difficult-to-plan work load, being continuously confronted with suffering and

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death, having to communicate interprofessionally, interhierarchically and between units, and having to cope with ongoing healthcare reforms.

The result is high fluctuation rates, which in turn confront hospital management with the necessity to maintain, or improve, the quality of services with ever-changing personnel. The situation is not eased by the ageing of populations and by the raising of retirement ages. Staff need to perform for more life years than in the past while at the same time the number of patients needing treatment, and the complexity of their conditions, are also on the rise.

Concerning *people in the neighborhood and catchment area*, hospitals traditionally do not have that many points of direct contact. However, their mere functioning can have saluto- or pathogenic effects on their surroundings. Hospitals are large consumers of energy and goods; they create traffic and produce potentially dangerous waste, such as toxic wastewater and emissions. Thus, decisions taken by the purchasing department, for example, on buying local and biological food for the canteen, architectonic decisions that may have implications for the amount of energy needed to heat or cool the building, and the quality of waste management systems all contribute to saluto- or pathogenic impacts for people in the nearer or wider neighborhood.

In addition, hospitals are large consumers of healthcare budgets and, as such, use scarce resources on a comparably low number of people. WHO-Euro's current health policy, Health 2020, maintains that 'we continue to spend far too little on health promotion and disease prevention compared with treatment. Health 2020 argues strongly that this balance needs to change in favor of upstream interventions to prevent the later human and economic burden of end-stage disease and disability' (WHO, 2013).

Numerous reform concepts have already been initiated from different angles, aiming at improving the salutogenic effects of health services:

- Patients' rights movements have led to the appointment of ombudsmen and patient attorneys. While in principle this is a positive development, a potentially dangerous side effect is a culture of not openly communicating about error in hospitals, by that missing chances for improvement.
- In the wake of the hospital quality movements, the concept of co-production of health was introduced, as healthcare staff became increasingly aware that treatment outcomes are suboptimal without the cooperation of the patients.
- Evidence-based medicine, with its criteria of scientific evidence, staff competencies and patient preferences,

aims at supporting rational healthcare decisions and omitting unnecessary interventions.
- Concepts for integrative care aim at supporting patients through their whole patient journey, not only the rather short hospital stay.
- Supranational agents like the World Health Organization are increasingly concerned about healthcare's ability to tackle noncommunicable diseases and have been developing global action plans in which health services are seen as one of many actors who need to cooperate with others.
- Health promotion introduced the concept of empowerment; and the patient education movements introduced the need for (critical) health literacy.
- For hospital staff, there are specific concepts of workplace health promotion.
- For people in the neighborhood and catchment area, concepts like 'sustainable' hospitals and 'green' hospitals have developed.
- Health-Promoting Hospitals (HPHs) have further strengthened hospitals' community focus by encouraging health-promoting collaborations between hospitals and other organizations, such as schools or enterprises, or by suggesting the use of hospital data to inform decisions on health-promoting community development.

The above-mentioned and other reform movements have been implemented in hospitals to very different degrees. Hospitals are characterized by comparably high levels of hierarchy, and compared to the influence of the health professionals, management has a limited role. This organizational constellation has been coined the 'professional bureaucracy' (Mintzberg, 2012). Because of these characteristics, hospital innovations very much depend on the actual motivation and behavior of healthcare professionals. Therefore, it is decisive to convince and train professionals (not only management) to achieve change. On an organizational level, following the German sociologist Niklas Luhmann (Luhmann, 2011), it is decisions that reproduce—and can change—an organization. The consequence of this theory for altering organizations is that changes, in order to be effective and sustainable, have to be enacted by the everyday decisions of the members of the organization itself, but have to be enabled by supporting structures and cultures (Pelikan, Schmied, & Dietscher, 2014). Therefore, any reform proposal coming from outside needs to address and to relate to the specific way an organization takes and supports decisions.

We apply this perspective in asking not only how hospitals can be made less pathogenic—what most of the

above-mentioned reform movements aim for—but how they could actually be made more salutogenic settings.

A General Salutogenic Orientation

In light of the above, it appears obvious that the introduction of salutogenesis provides a challenge and contradiction to the established practice of hospital healthcare. In the following, we provide some suggestions on how a salutogenic hospital could look like and what dimensions it would comprise, drawing on our understanding of Antonovsky's salutogenic orientation and model, as well as on the sense of coherence, and on our background in HPHs.

Antonovsky's (1996) salutogenic orientation introduces a resource-oriented—instead of risk-oriented—perspective on the maintenance, restoration, or improvement of health. To promote health, Antonovsky demands an orientation to salutary factors which allow people to remain on, or move further toward, the health side of what he describes as the health-disease continuum, by allowing them to handle well the stressors they are doggedly confronted with:

> This orientation, which should be reflected in both research and action, should refer to all aspects of a person and to everybody, no matter where they are on the health disease continuum: A salutogenic orientation, then, as the basis for health promotion, directs both research and action efforts to encompass all persons, wherever they are on the continuum (Antonovsky, 1996, p. 14).

Taking this perspective seriously would require a rather radically changed perspective not only on current hospital healthcare practice, but also on education of healthcare professionals and on research.

First, the risk and deficit-oriented approach that is now common in healthcare would have to be replaced or at least complemented by a thoroughly resource-oriented approach. In relation to *hospital patients*, this would mean a resource-strengthening approach from the first point of contact until discharge, focusing not only on symptoms, risks, and deficits, but also on maintaining, using and improving the resources that can support recovery or at least delay the progression of disease. Since salutogenesis refers to 'all aspects of a person,' this perspective needs to encompass health and resources for health in a comprehensive, somato-psycho-social sense. Accordingly, clinical research and care would have to expand from the best available medical care to asking which patients' physical, mental, and social resources (such as self-care, personal health beliefs, or social networks) are most helpful to support healing. Another important research question is how these resources can be activated.

Furthermore, encompassing "all persons, wherever they are on the health-disease continuum," would imply that *all patients*, no matter whether they are just there for a routine check-up or in palliative care, can and have to be addressed in a salutogenic way, focusing on, and strengthening, the resources they (still) have.

And of course the resource-oriented approach would also have to be applied to *hospital staff* by ensuring that they have the resources available they need for performing their job. This could, for example, be achieved by a comprehensive workplace health promotion approach.

For *neighborhood and catchment areas*, the resource-oriented approach would mean to transform hospitals into health resources for their communities, for example by offering easily accessible and easy-to-understand health information in a hospital library, on the hospital website, or a hospital TV program, or by collaborating in joint health-oriented projects with local schools, enterprises, or administrations.

Second, in the spirit of 'do no harm,' it would be necessary to consider how far standard diagnostic and therapeutic interventions actually represent health resources—or rather risks or stressors to the health of *patients* (Ventegodt, Kandel, & Merrick, 2007). One option to avoid unnecessary stressors to health is by not applying interventions if the potential harm can be expected to outweigh the potential benefits. This could be the case, for example, for some CT scans because of the high radiation dose they incur. A specific campaign to support the aim to eliminate unnecessary or potentially harmful treatment was developed in the USA under the title "Choosing wisely" (see http://www.choosingwisely.org; visited on July 28, 2015).

For *healthcare staff*, doing no harm has much in common with occupational health and safety management. It is important to identify the relevant stressors, for example, by using health circles (Aust & Ducki, 2004). Wherever possible, identified stressors should be eliminated or reduced. For example, communication problems between units can be improved by changing communication routines. For stressors that cannot be eliminated, adequate compensation should be provided. For example, the continuous confrontation of staff with suffering and death is endemic to hospitals, but its effect on staff can be eased by psychological interventions or by an organizational policy on how to deal with emotional strain. Also, there will always be the need for shift work in hospitals, but much can be done to improve work organization in the sense of a good work–life balance, an approach that has also become known as 'family-friendly workplace.' A salutogenic perspective might help to identify and address these and other staff-related stressors more systematically.

For *catchment areas and communities*, finally, avoiding harm can be achieved by a safer handling of hazardous hospital wastes. For example, potentially harmful residues of medical drugs, including antibiotics, hormones, or cytostatic agents, constantly get into the environment by way of

medical wastewaters. As more and more treatments are being carried out in day clinics, those drugs also increasingly pass through the plumbing systems of regular households and might finally end up in the ecosystem.

From our comprehensive perspective on salutogenesis—encompassing patients, staff, and community citizens as target groups—follows that salutogenic interventions are not limited to interventions in persons. Such interventions include not least interventions to improve the physical hospital design. This can include ergonomics for staff or, concerning patients, quiet rooms (Hasfeldt, Maindal, Toft, & Birkelund, 2014), as well as naturally aired and lighted rooms. Light was, for example, found to make a difference on mortality after myocardial infarction (compare the study "dying in the dark" (Beauchemin & Hays, 1998)). A summary of the salutogenic effects of healthcare design (although without explicitly referring to salutogenesis) can be found in Ulrich, Berry, Quan, and Parish (2010).

Sense of Coherence

Antonovsky's comprehensive salutogenic model puts great emphasis on characteristics that enable people to deal with different types of stressors. This seems particularly important in light of the available evidence from psychoneuroimmunology research on the impacts of stress on physical health (compare Kusnekov & Anisman, 2013). In hospitals, an orientation at this approach would demand a focus on reducing specific healthcare-related stressors for those persons who are exposed to hospitals. Furthermore, their stress-coping competences and resources need to be strengthened.

The *sense of coherence* can be understood as the most specific and focused way to operationalize Antonovsky's concept of salutogenesis. It implies the importance of three dimensions for successfully coping with challenges—these are *comprehensibility*, *manageability,* and *meaningfulness* of life. It seems that these dimensions also relate to the functioning of the human brain (compare Rock, 2008). Attempting at reducing possible stress by improving comprehensibility, manageability, and meaningfulness of life has specific consequences for the design and organization of health services, as well as for the content of healthcare interventions.

Studies on *health literacy*—the ability to find, understand, appraise, and apply health-related information—demonstrate that *comprehensibility* of healthcare tasks is difficult for many *patients* (Sørensen et al., 2015). A lot of verbal and written healthcare communication is based on medical jargon which makes it difficult for patients to detect the meaning of what they are told or of what they read. An orientation to the sense of coherence would require that health information be offered in an understandable way, in other words, by using plain language and writing in short sentences, and breaking content down into digestible junks of information. Written information and interpreting services should also be available in the languages of most patients. Furthermore, *comprehensibility* can be supported by healthcare design, for example, by providing easy-to-read signage (Rudd & Anderson, 2006).

Healthcare staff, too, can profit from an increased orientation to *comprehensibility*. By using communication tools like teach-back (letting patients explain what they understand in their own words), staff can develop a better understanding of their patients' communication needs (Pelikan & Dietscher, 2015). In some cases, it may be important to improve the comprehensibility—or disease-specific literacy—of healthcare personnel before they can properly support their patients. For example, Gigerenzer (2014) found that many medical doctors are not sufficiently trained to correctly interpret healthcare statistics. They may also be deliberately misled in interpreting findings by the way study findings are presented. The result is an overestimation of the benefits of medical diagnostic and therapeutic interventions, and an underestimation of the related potential harm, which has considerable implications for treatment recommendations. On the basis of these and similar findings, the Harding Centre for Risk Literacy developed a specific format—so-called fact boxes—for presenting medical information in an easy-to-understand way. The fact boxes give absolute figures on potential benefits and potential harms of diagnostic or treatment interventions, instead of difficult-to-interpret data formats like relative risks on potential benefits alone. This information provides the grounds for well-informed healthcare decision making in a partnership between professionals and patients (https://www.harding-center.mpg.de/en/health-information; visited February 25, 2015).

An increased orientation to the *manageability* aspect of sense of coherence would mean that *patients*, especially those with chronic diseases (and relatives or other caregivers) are empowered as much as possible to take care of their own condition, during and between hospital stays. For those who have problems with self-management, specific support should be available, for example, in the form of case management.

For *staff*, an orientation to *manageability* would also mean a perception of one's work life as malleable if work conditions are felt to be burdensome. Staff should be encouraged to make suggestions for improvements of the work flow, and there should be flexible options to support staff with acute problems (e.g., having to care for a family member at home).

And, for people in the hospital neighborhood and catchment area, an orientation to *manageability* would mean that

the hospital offers publicly available information about the self-management of disease, and of health enhancement, for example, via its website, at health fairs, or in cooperation with other stakeholders.

Meaningfulness, finally, can be supported by psychological or pastoral interventions that enable people to make sense of their situation as a patient or staff member. While there may be more technical solutions for improving comprehensibility and manageability, supporting meaningfulness seems to be a rather individualized process which has to be mainly achieved in person-to-person interaction.

All three aspects of the sense of coherence can be addressed in relation to challenges posed by the routine functioning of the hospital itself—interventions would then aim at improving comprehensibility, manageability, and meaningfulness of being a patient or staff member. But interventions can also address the challenges of life in general. This may be adequate for patients with long-term conditions as well as for staff whose workability suffers from personal problems.

And, while a general salutogenic orientation of hospital structures and processes might be supportive for all those in contact with the hospital, people with a low sense of coherence may need further specific compensatory support (providing help to understanding, managing, and sense-making).

Developing Organizational Capacities for Salutogenesis

From a quality perspective, and salutogenesis should be introduced into hospitals as a specific dimension of quality, it follows that salutogenic processes need to be supported by salutogenic structures in order to produce desired salutogenic outcomes. Salutogenesis should ideally be considered an organizational principle the implementation of which is supported by adequate organizational structures and capacities. Such capacities include leadership support, clear organizational responsibilities for salutogenesis, trained and experienced staff, an earmarked budget, and the inclusion of criteria and indicators for salutogenesis into continuous monitoring and improvement processes for which support from quality management might be a useful lever (Pelikan, Krajic, & Dietscher, 2001; Röthlin, Schmied, & Dietscher, 2015). The existence of such capacities would enable a continuous improvement of the salutogenic orientation of the overall daily functioning of hospitals as the centers of modern healthcare delivery systems. In addition, hospitals can support research on the role of salutogenesis in patient treatment, in designing workplaces for their staff, and in working with people in neighborhoods and catchment areas. Not least, they can contribute to teaching and training healthcare professionals to perform salutogenic healthcare interventions.

Research on Salutogenesis as Applied to Hospitals

We will now contrast the 'salutogenic hospital blueprint' that we outlined above with the findings of a literature search on salutogenesis in hospitals that we performed in Medline and PubMed. Our main research question here is: how far does the available literature already refer to concepts of salutogenesis in relation to hospital structures or processes—which areas are covered, which are not? And do new areas emerge from the literature that could be used to further develop the blueprint?

We used Reference Manager as search tool to identify articles whose titles or abstracts contained a combination of one or more of the keywords salutogenesis, salutogenic, sense of coherence, or general/generalized resistance resources, with the keywords hospital, patient, doctor, or nurse, and which had been published until September 2014.

The main inclusion criterion was that papers retrieved should refer to salutogenesis or specific concepts like the Sense of Coherence (SOC) or generalized resistance resources in relation to hospital structures or processes. Papers were excluded if they met one or more of the following *exclusion* criteria:

- Clinical study with a focus on the impact of salutogenesis/SOC on the etiology of specific diseases, or other clinical study, without explicit referral to hospital characteristics or interventions.
- Focus on other healthcare settings than hospitals.
- Study on validation of measurement tool without relation to salutogenic impacts of hospital characteristics or interventions.
- Lack of conclusions in relation to salutogenesis.
- Abstract not available.

Of all 532 abstracts retrieved, 354 were excluded because they met one of the defined exclusion criteria (see Table 27.1).

The majority of excluded studies focused on the role of salutogenesis in the etiology of diseases and had no relation to healthcare as such (169 papers or 48 % of all eliminated papers). 142 papers (40 %) were excluded because they did not refer to hospitals but for example to patients in long-term care. Eight percent were excluded because their findings were not used to draw conclusions of relevance to salutogenesis. Three percent were excluded because they

Table 27.1 Defined exclusion criteria, number and percent of excluded papers per criterion

Exclusion criteria	Number papers	Percent papers
Clinical study with a focus on the impact of salutogenesis/SOC on the etiology of specific diseases, or other clinical study without explicit relation to hospital characteristics or interventions	169	47.7
Focus on other healthcare setting than hospital	142	40
No conclusions in relation to salutogenesis were presented	29	8.19
Study on validation of measurement tool without	11	3
Abstract not available	3	1
Total	*354*	*100.00*

Table 27.2 Search result

Keyword combination	Retrieved	Excluded	Focus on patients	Focus on staff
Hospital + salutogenesis	2	0	1	1
Hospital + salutogenic	16	6	6	4
Hospital + SOC	122	68	47	7
Hospital + GRRs	0	0	0	0
Patients + salutogenesis	35	22	13	0
Patients + salutogenic	15	12	3	0
Patients + SOC	310	224	84	2
Patients + GRRs	0	0	0	0
Nurses + salutogenesis	1	1	0	0
Nurses + salutogenic	8	6	0	2
Nurses + SOC	18	11	0	7
Nurses + GRRs	0	0	0	0
Doctors + salutogenesis	2	1	0	1
Doctors + salutogenic	0	0	0	0
Doctors + SOC	3	3	0	0
Doctors + GRRs	0	0	0	0
Total	532	354	154	24

described the validation of measurement tools, and 1 % of papers could not be further assessed because no (English) abstract was available.

Of the remaining 178 papers, 154 focused on patients and 24 on hospital staff. 158 (89 %) focused on the sense of coherence (of these, 140 papers on patients and 18 on staff), 20 papers on a general, usually rather unspecified and normative salutogenic orientation (of these, 14 papers on patients and 6 papers on staff), and only 2 papers focused on generalized resistance resources (compare Table 27.2).

Abstracts of the included papers were content-analyzed in order to get a deeper understanding of what aspects of salutogenesis, the salutogenic model, and the sense of coherence or generalized resistance resources they covered in relation to hospital structures, processes, and target groups. On the basis of the results, a narrative review was produced.

Salutogenesis in Relation to Hospital Patients

Hundred and fifty-four of the included papers addressed hospital patients. The retrieved papers were published between 1991 and 2014. The majority of papers (80 %) were published by European authors, with Sweden (59 papers), Germany (14 papers), Norway (10 papers), and Switzerland (8 papers) as the top countries. Nine percent of papers were from Asia (including Israel), 5 % from North America, 4 % from Australia, and 2 % from South America (Table 27.3). Over the years, a slight rise of interest in other geographical areas, for example, in China, Japan, Brazil, and a few Eastern European countries was observed.

Over time, a visible increase of publications can be observed. Only 5 % of the 154 papers had been published in the first 5 years (1991–1995) of the observation period, about 16 % of papers respectively were published in the following two 5-year periods, and the percentage went considerably up to 28 % in the next 5-year phase (2006–2010), and rose to 34 % of papers for the period 2011–2015 (Table 27.4).

Eighty-one percent of the 154 patient-related papers refer to patients with specific clinical diagnoses. The majority of these are on frequent, severe, and chronic diseases such as heart diseases (22 %), cancers (15 %), severe mental health problems (14 %), or diabetes (7 %). Some papers also address patients with chronic conditions in general, or with rare diseases, such as ménières and cystic fibrosis.

Twelve percent of papers address patients more generally (e.g., 'patients of a general hospital'), and the remaining 7 % focus on the salutogenesis of family caregivers, usually in relation to severe illnesses such as cancers (Table 27.5).

Which Concepts of Salutogenesis Are Referred to?

As was to be expected, the most widely used of Antonovsky's concepts in relation to hospital patients is the sense of coherence (91 % of papers). A minority of the related studies apply a qualitative approach, using the SOC dimensions to structure analyses of qualitative data, such as data on patient experiences. Most of the identified studies describe quantitative measurements and analyses of the SOC (either by 29-item, 13-item, or 3-item scales). SOC scores are often related to patients' self-perceived symptom

Table 27.3 Geographic areas from which papers on salutogenesis and hospital patients were published

Region	Number papers	Percent papers
Europe	124	80.52
Asia including Israel	14	9.09
North America	7	4.55
Australia	6	3.90
South America	3	1.95
Total	*154*	*100.00*

Table 27.4 Distribution of publications over time

Years	Number publications	Percent publications	Percent publications in 5-year-periods
1991	1	0.65	5.19
1992	2	1.30	
1993	0	0.00	
1994	2	1.30	
1995	3	1.95	
1996	4	2.60	15.58
1997	2	1.30	
1998	3	1.95	
1999	10	6.49	
2000	5	3.25	
2001	4	2.60	16.23
2002	3	1.95	
2003	5	3.25	
2004	5	3.25	
2005	8	5.19	
2006	4	2.60	28.57
2007	13	8.44	
2008	9	5.84	
2009	10	6.49	
2010	8	5.19	
2011	15	9.74	34.42
2012	19	12.34	
2013	13	8.44	
2014	6	3.90	
24	154	100.00	100.00

Table 27.5 Clinical diagnoses related to salutogenesis and hospital patients in the literature

Patients	Number publications	Percent publications
Heart diseases	28	22.40
Cancers	19	15.20
Mental health/illness	18	14.40
Specific care units (e.g., ICUs, palliative care units)	10	8.00
Diabetes	9	7.20
Orthopedic diseases	8	6.40
Pregnancy and conception	6	4.80
Autoimmune diseases	5	4.00
Surgery	4	3.20
Kidney diseases	4	3.20
Rare diseases	4	3.20
Degenerative neurological conditions	3	2.40
AIDS	2	1.60
Digestive system diseases	2	1.60
Side effects of diseases	1	0.80
Other diseases	2	1.60
	125	100.00

Several papers reflect on the potential impact of the SOC on self-rated health, pain perceptions, symptom severity, treatment outcomes, and physical functionality in patients. Typically, these papers test the hypothesis that higher SOC scores are related to better subjective health, treatment outcomes, and functionality.

Concerning *self-rated health*, this hypothesis was confirmed for self-rated health in patients after myocardial infarction (Gerber, Benyamini, Goldbourt, & Drory, 2009) and for pain severity (Barthelsson, Nordstrom, & Norberg, 2011; Cederlund, Ramel, Rosberg, & Dahlin, 2010; Hall-Lord, Larsson, & Steen, 1999; Karlsson, Berglin, Pettersson, & Larsson, 1999). Concerning the severity of other symptoms, Ahola, Saraheimo, Forsblom, Hietala, and Groop (2010) and Richardson, Adner, and Nordstrom (2001) suggest that higher SOC scores are related to lower HbA1c values in diabetic patients, and Bergman, Malm, Karlsson, and Bertero (2009) report less angina attacks in heart patients with higher SOC scores. Li et al. (2015) describe negative correlations between higher SOC scores, symptom duration, and symptom severity in general, and Tschan et al. (2011) see a reduced likeliness of developing secondary somatoform dizziness after vestibular disease in patients with higher SOC.

In relation to *treatment outcomes*, Ristner, Andersson, Johansson, Johansson, and Ponzer (2000) identify low SOC as a risk factor for suboptimal treatment outcomes after orthopedic injuries. And there are also positive interrelations between SOC scores and physical functionality. For example, Li et al. (2015) detect interrelations between the SOC

severity, disease-related quality of life, subjective well-being, mental comorbidities of somatic diseases, patient satisfaction, or self-care and coping abilities. Furthermore, some studies test their predictive value in relation to the progress of disease.

The SOC in Relation to Physical Symptoms

Amongst the patient-related papers, the majority focus on patients with specific somatic diseases, and again a large part of these cover interrelations between the SOC and physical health.

and daily-life impairment in patients and Schult, Soderback, and Jacobs (2000) describe weak but significant correlations between the SOC and the ability of pain patients to perform daily activities.

Overall, authors argue that the positive effects of the SOC found in the above-listed studies can either be explained by moderating effects of good mental health (which is typically related to higher SOC scores) or by better disease-specific self-management of patients with higher SOC scores, or by a combination of both. These arguments seem to be supported by the fact that the literature reports hardly any findings on interrelations between SOC scores and the severity of diseases or symptoms that do not appear to be directly amenable by self-management or good mental health. For example, in a study on Parkinson patients, Pusswald, Fleck, Haubenberger, Auff, and Weber (2009) could not detect any positive correlations between SOC and somatic health.

In contrast to the idea of the SOC being a stable construct in adults, some longitudinal studies that involved SOC measurements at different points in time (e.g., at hospital admission and at later stages) suggest that the SOC can change over time. For example, according to Bergman, Malm, Bertero, and Karlsson (2011), the SOC may decrease after a first-time myocardial infarction. However, the general perception is that SOC values return to the level before the onset of disease when symptoms decrease (see e.g., Berg & Kononova, 2009).

The SOC in Relation to Mental Symptoms, Quality of Life, and Patient Satisfaction

Studies on the SOC and mental health can be divided into two groups. One comprises papers studying the SOC in relation to mental diseases such as major depression (e.g., Skarsater, Langius, Agren, Haggstrom, & Dencker, 2005), suicidality (Sjostrom, Hetta, & Waern, 2012), schizophrenia (Eklund, Hansson, & Bengtsson-Tops, 2004; Gassmann, Christ, Lampert, & Berger, 2013), or delusional diseases (Bergstein, Weizman, & Solomon, 2008). The other group consists of papers assessing the SOC in relation to mental comorbidities of somatic diseases and issues. These include cancers (Ezer, Chachamovich, Saad, Aprikian, & Souhami, 2012; Forsberg & Bjorvell, 1996; Langius & Lind, 1995; Siglen, Bjorvatn, Engebretsen, Berglund, & Natvig, 2007), myocardial infarction (Benyamini, Roziner, Goldbourt, Drory, & Gerber, 2013), heart transplantation (Ruzyczka et al., 2011), lumbar spinal stenosis (Sinikallio et al., 2006), Morbus Parkinson (Pusswald et al., 2009), kidney diseases (e.g., Klang, Bjorvell, & Cronqvist, 1996), rheumatoid arthritis (Buchi et al., 1998), systemic sclerosis (Hyphantis et al., 2007), traumatic child birth experiences

(Stramrood et al., 2011), critical accidents (Schnyder et al., 2000), and critical diseases in general (Fok, Chair, & Lopez, 2005).

Papers overall (though not in unison) conclude that lower SOC scores are related to more severe *mental disorders or mental comorbidities*. For example, Wang, Hay, Clarke, and Menahem (2012) identify high SOC as a counter-indicator for anxiety and depression in adolescent heart patients. According to studies on uremic patients (Klang et al., 1996) and on cancer patients (Gustavsson-Lilius, Julkunen, Keskivaara, Lipsanen, & Hietanen, 2012), lower SOC scores are related to higher levels of anxieties or demoralization (Boscaglia & Clarke, 2007). With regard to diabetic patients, Wikblad and Montin (1992) conclude that lower SOC scores are related to lower self-esteem. Some longitudinal studies that assess patients' SOC at different points in time typically conclude, similar to longitudinal studies on the interrelation between the SOC and physical symptoms, that the SOC may change over time, depending on the patients' mental health conditions. For example, in a study on patients with major depression, Skarsater et al. (2005) note that the SOC increases significantly when patients recover. Similarly, Bergstein et al. (2008) point out that the SOC is reduced during phases of remission in delusional patients.

Both in relation to somatic and mental disorders, the literature is quite clear about positive effects of higher SOC scores on patients' *quality of life*. One possible explanation might be that the SOC functions as a moderator between psychological distress and health-related quality of life, as suggested by Hyphantis, Palieraki, Voulgari, Tsifetaki, and Drosos (2011) in a study on patients suffering from systemic Lupus erythematosus. Positive interrelations between the SOC and quality of life are reported for numerous conditions. These include critically ill groups of patients in general (Fok et al., 2005), heart conditions (Bruscia, Shultis, Dennery, & Dileo, 2008; Norekval et al., 2010; Ruzyczka et al., 2011; Silarova et al., 2012), cancers (Ding, Hu, & Hallberg, 2013; Drabe et al., 2015; Forsberg, Bjorvell, & Cedermark, 1996; Henoch, Bergman, Gustafsson, Gaston-Johansson, & Danielson, 2007; Mizuno, Kakuta, & Inoue, 2009; Paika et al., 2010), and hematopoietic stem cell transplantation (Pillay et al., 2014). Few papers focus on the quality of life in patients with rare diseases. An example is the study by Soderman, Bergenius, Bagger-Sjoback, Tjell, and Langius (2001) on Meniere's disease. This too confirms the positive relation between the SOC and patients' quality of life.

Furthermore, the SOC is also described as being positively related to *patient satisfaction* (Larsson, 1999; Tistad, Tham, von Koch, & Ytterberg, 2012). Dubs (1999) offers a complex model in which salutogenesis is understood as one factor to explain patient satisfaction after surgery. And

Veenstra and Hofoss (2003) identify the SOC as the most important patient-related factor in relation to patients' perception of information received while in the hospital.

The SOC, Adjustment to Disease, Self-Management, and Adherence to Treatment

Another outcome of interest is the relation of the SOC to patients' *ability to adjust to a disease*, to take responsibility for their *self-care or self-management*, and to *adhere to treatment recommendations*, especially in relation to chronic diseases that require an active participation of patients in relation to maintaining their condition.

Concerning *adjustment* to disease, published findings include positive effects of the SOC in relation to myocardial infarction (Drory, Kravetz, & Florian, 1999) and ostomy surgery (Nordstrom & Lutzen, 1995).

Concerning *self-management and adherence to treatment* too, the available literature widely suggests positive effects of higher SOC scores in relation to numerous conditions. For example, Helvik, Engedal, Bjorklof, and Selbaek (2012) and Soderhamn, Bachrach-Lindstrom, and Ek (2008) describe positive relations between the SOC and the self-care abilities of elderly patients in general, Spadoti Dantas, Silva, and Ciol (2014) report positive links to coping strategies in patients with overall chronic diseases, Ahola et al. (2012) conclude that higher SOC scores in female diabetes patients are related to healthier food choices, and to more exercise in male diabetes patients. According to Pusswald et al. (2009) the SOC is related to the coping abilities of Parkinson's disease patients, while Silarova, Nagyova, Van Dijk, Rosenberger, and Reijneveld (2013) describe low SOC scores as a risk factor for limited health-related behaviors in heart patients, and Myers, Drory, and Gerber (2011) suggest relations to patients' level of leisure-time activities after myocardial infarction. Langius, Bjorvell, and Lind (1994) identify the SOC as related to the functioning and rehabilitation after oral and pharyngeal cancer, Kenne, Browall, and Gaston-Johansson (2013) note relations between the SOC and coping in women with breast cancer, and Stromsvik et al. (2007) use the SOC theory to discuss their findings on the living experiences of Swedish men with multiple endocrine neoplasia. Cederfjall, Langius-Eklof, Lidman, and Wredling (2002) detect relations between low SOC scores and nonadherence in HIV patients. Warwick, Gallagher, Chenoweth, and Stein-Parbury (2010) conclude that a better understanding of the SOC may be helpful to support symptom monitoring and self-care in patients suffering from chronic obstructive pulmonary disease. Sjostrom, Langius-Eklof, and Hjertberg (2004) conclude that the SOC is important for pregnant women's ability to adjust to unforeseen events in relation to their condition.

Contradictive to these findings, one study on the associations between psychosocial factors and outcomes of physiotherapy reports no relations between the SOC and motivation (Lohmann, Strobl, Mueller, Huber, & Grill, 2011).

The SOC and Social Outcomes

A small number of studies focus not only on the relations between the SOC, clinical symptoms, and subjective quality of life, but also on relations between the SOC and social outcomes. These include school achievements in adolescents with congenital heart disease (Apers et al., 2013) and experiences of stigma in mental health patients (Lundberg, Hansson, Wentz, & Bjorkman, 2009). Papers typically conclude that lower SOC scores are related to higher risks of experiencing undesired outcomes (such as low school achievement or high levels of stigma).

The SOC and Positive Health

Not surprisingly given the hospital context of this paper, most of the studies retrieved on the SOC and hospital patients are disease related. Only few studies use salutogenesis concepts such as the SOC to actually explain positive health. Examples are studies on healthy ageing respectively good health in later life by Gilhooly, Hanlon, Cullen, Macdonald, and Whyte (2007) and Schneider et al. (2004). Findings suggest positive effects of higher SOC scores.

The SOC in Relation to Gender, Age, and Socioeconomic Status

The few studies that differentiate between male and female patients, typically find lower SOC scores in females as compared to males with the same diagnosis and symptom severity (e.g., Bergsten, Hjelte, & Hochwalder, 2011; Cederfjall, Langius-Eklof, Lidman, & Wredling, 2001; Lithner et al., 2012; Torrati, Gois, & Dantas, 2010; Wrzesniewski & Wlodarczyk, 2012). Furthermore, literature suggests that the dimensions of the SOC may be of different relevance to men and women. According to a study on patients with cystic fibrosis by Bergsten et al. (2011), males are at higher risk for mental ill-health if they score low on comprehensibility while females have higher risks if they score low on manageability. With regard to patients of different socioeconomic status and different ethnicity, Silarova et al. (2013) report that members of more disadvantaged groups have lower SOC scores. Both gender- and

status-specific findings suggest that the development of individual levels of SOC may be dependent on restrictions experienced in relation to gender or socioeconomic status.

The SOC in Relation to Patients' Family Members

Caring family members—especially those of patients with severe and life-threatening diseases—and relations between their SOC, quality of life, mental health, and well-being are also a frequent theme in patient-related studies. For example, Jaracz, Grabowska-Fudala, and Kozubski (2012) and Larson et al. (2005) report on relations between the SOC, quality of life and the burden of caregivers after stroke. Caap-Ahlgren and Dehlin (2002) focus on family members of Parkinson's disease patients. Drabe et al. (2015), Ezer et al. (2006), Gudmundsdottir, Schirren, and Boman (2011), Khanjari, Oskouie, and Langius-Eklof (2012), Schmitt et al. (2008), Tang, Cheng, Lee, Chen, and Liu (2013), Tzuh and Li (2008), and Yang et al. (2012) investigate the situation and adjustment of caregivers and family members of cancer patients.

The literature generally confirms that higher SOC scores of family members reduce their risks for and levels of developing mental comorbidities in relation to taking care of an ill family member (e.g., Gudmundsdottir et al., 2011), and positive effects of good SOC scores on the quality of life of caring family members are also described (e.g., Ezer et al., 2006).

Salutogenesis in General and the Salutogenic Model

Less than 10 % of the papers retrieved referred either to Antonovsky's comprehensive salutogenic model or to salutogenesis in general. Tishelman, Taube, and Sachs (1991) suggest the salutogenic model as a framework for studying and supporting cancer patients. Wikblad and Montin (1992) use it to identify the caring needs of diabetes patients. When salutogenesis is referred to in more general terms, the concept typically remains rather vague or normative. For example, in a paper by Ventegodt et al. (2007), salutogenesis is described "as the process exactly the opposite of pathogenesis" (Ventegodt, Thegler, et al., 2007, p. 306), or authors claim "salutogenic effects" of suggested interventions, such as relaxation training during pregnancy (Fink, Urech, Cavelti, & Alder, 2012). Berger (2003) states that the theory of salutogenesis with its search for health-preserving factors can support the strengthening of patient's self-healing powers by identifying healthy parts, and Onega (1991) understands salutogenesis as a guiding concept for

psychiatric care. Referrals to salutogenesis with a slightly esoteric touch can also be found in studies on so-called *holistic care* (e.g., Ventegodt, Merrick, & Merrick, 2006).

Salutogenesis and Impacts of the Hospital Setting on Patients

In the sense of a whole systems-approach, another, still rather small strand of research focuses on salutogenesis in relation to the routine processes and physical surroundings of hospitals. For example, one paper by Hasfeldt et al. (2014) focuses on the impact of noise in ICU wards on patient experiences. Results indicate that lower SOC is related to higher perceived noise and to higher patient stress levels.

Additional papers on effects of the hospital setting that were identified by freehand search include a synthesis of the evidence of effects of healthcare design on health (Ulrich et al., 2010). Findings suggest that design is a relevant resource for salutogenic processes. More explicitly, Dilani and Armstrong (2008) bring together the concepts of salutogenesis and design, focusing on how physical environments can support understandability (e.g., by clear signage), manageability (e.g., by providing architectonic features that support functional independence), and meaningfulness (e.g., by providing areas for relaxation).

Implications for Salutogenic Patient-Oriented Interventions

What consequences for supporting patients did the researchers draw from their findings? Basically, five areas of interventions can be distinguished and will be described in more detail in the following. These are: to use the SOC as a diagnostic tool; to adapt treatment schemes to compensate for low SOC, or to improve the SOC; to strengthen patient self-management; to support caring family members; and to adapt hospital structures and routines. Overall, hospital nurses are most often suggested as those who should perform these interventions.

Using the SOC as a Diagnostic Tool

The most widely drawn conclusion from studies on patients and salutogenesis, over a wide spectrum of diseases, is that *SOC measurements enable the identification of patients in need of specific treatment, information or support* so as to achieve better targeted healthcare, better subjective health, quality of life, or self-management. Numerous authors conclude that patients' SOC scores should be assessed to inform treatment decisions and interventions (Blom, Larsson,

Serlachius, & Ingvar, 2010; Boman, Bjorvell, Langius, & Cedermark, 1999; Buchi et al., 1998; Ding et al., 2013; Drabe et al., 2015; Forsberg et al., 1996; Klang et al., 1996; Linnen et al., 2011; Matsuura et al., 2003; Myers et al., 2011; Norekval et al., 2010; Spadoti Dantas et al., 2014; Torrati et al., 2010). However, there is also some criticism to use the SOC for this purpose, since authors find its dimensions overlapping with other concepts such as anxiety or disease-related depression (Sack, Kunsebeck, & Lamprecht, 1997), suggesting that the SOC might be a proxy for mental health, well-being and functionality.

Recommendations on using SOC scores as diagnostic tools are clearly better represented in the literature than recommendations of resulting interventions. With regard to the latter, some authors (e.g., Sales, Carvalho, McIntyre, Pavlidis, & Hyphantis, 2014) see a need for more and better studies on the interplay between concepts such as the SOC, quality of life, and treatment outcomes, as a precondition for suggesting effective interventions.

Adapting Treatment Schemes

Other papers on patients already recommend specific interventions. Implicitly, most recommendations seem to focus on interventions to compensate for low levels of SOC, rather than to enhance the SOC in general or one of its dimensions. For example, it is widely suggested to *adapt treatment schemes* for patients with low SOC scores, mostly in relation to supporting patients' mental health. Interestingly, although most patient-related studies quoted in this paper focus on the SOC, most of the recommended interventions do not explicitly relate to improving or compensating the SOC or one of its dimensions. Across a wide spectrum of conditions, authors recommend rather general psychological or psychotherapeutic interventions to support patients with low SOC scores. This refers to cancer patients (Forsberg & Bjorvell, 1996), patients after myocardial infarction (Wrzesniewski & Wlodarczyk, 2012), patients with rheumatoid arthritis (Buchi et al., 1998), patients after vestibular disease (Tschan et al., 2011), or patients in need of haematopoietic stem cell transplantation (Pillay et al., 2014). Other recommendations for patients with low SOC scores include specific health promotion attention, such as the recommendation to heart patients to remain physically active (Gustavsson & Braanholm, 2003; Silarova et al., 2013). Yet another strand of recommendations calls for a "multidimensional" approach that comprises physical, psychological, and social aspects. This perspective is for example taken by Schneider et al. (2011) in a study on psoriasis patients, or by Karlsson et al. (1999) in a study on patients undergoing coronary artery bypass grafting. Richardson et al. (2001) conclude that SOC measurements may help to individualize

care for diabetes patients, Kenne et al. (2013) come to similar conclusions for supporting women with breast cancer. Cederfjall et al. (2002) suggest the development of a caring patient–provider relationship for HIV patients with low SOC scores.

However, there is also a group of papers that relate their recommendations more specifically to salutogenesis, to the SOC in general or to one of its dimensions. For example, Bergstein et al. (2008) who refer, in addition to the SOC, to the wider salutogenic model, call for interventions that may enhance elements of the SOC in patients with delusional disease, Ahola et al. (2010) formulate similar recommendations for diabetes patients, Gassmann et al. (2013) for schizophrenic patients. Pusswald et al. (2009) recommend that—in line with Antonovsky's concept of generalized resistance resources—counseling interviews with patients suffering from Parkinson's disease should include analyses of resources available to the patient. Quintard, Constant, Lakdja, and Labeyrie-Lagardere (2013), in a study on the sexual functioning of breast cancer patients, conclude that the patients' perception of available resources—in the sense of manageability of the situation—needs to be enhanced to achieve better outcomes and, also in relation to cancer patients, Gustavsson-Lilius et al. (2012) suggest promoting the SOC to enhance optimism. A paper by Bergman, Arestedt, Fridlund, Karlsson, and Malm (2012) aims at assessing which of the three dimensions of the SOC is most important for the rehabilitation of patients after first-time myocardial infarction. The authors conclude that comprehensibility is the most important dimension for this group of patients and consequently suggest that this dimension should be supported in healthcare. For patients in ICUs, Akerman, Ersson, Fridlund, and Samuelson (2013) suggest strengthening patients' sense of coherence by photo diaries. And for palliative care, in relation to manageability, a paper by Andershed and Ternestedt (1998) points to the importance of involving patients and relatives in deciding on opportunities for an appropriate death. Glazinski (2007) discusses in how far salutogenesis could become a guiding concept for neurology and psychiatry.

Less common and comparably new is the perception of the SOC being an amenable concept and of patients with lower SOC being in need of interventions to enhance their SOC. This position is taken in a study by Chenoweth, Gallagher, Sheriff, Donoghue, and Stein-Parbury (2008) on patients with Parkinson's disease. They conclude that nurses could contribute to this goal by encouraging their patients to participate in Parkinson's support groups, by teaching them self-management skills and symptom monitoring. Norekval et al. (2010) suggest that patient education might have salutogenic effects. Also, Kvale and Synnes (2013) suggest that the SOC of cancer patients can be enhanced. They explicitly refer to the dimension of manageability that can

be supported by adequate pain management strategies, while the dimension of meaningfulness may be enhanced by listening to patients' stories. Li et al. (2015) however conclude that longitudinal studies on the effects of treatment for low SOC are still missing.

Least common in the literature were tests to assess the effectiveness of specific interventions. For example, one study by Johnson, Meadows, Haubner, and Sevedge (2008) measured and compared effects of quiet reading sessions, human visits, and dog visits, on the SOC of patients undergoing radiation therapy for cancer. While all three types of interventions were experienced as beneficial by the patients, no statistically significant differences could be detected.

Supporting Self-Care and Self-Management

Papers on patients' ability for self-care or self-management typically interpret low SOC as an indication that patients should receive *specific support and training to improve self-care and self-management*. For example, in a longitudinal study on smoking cessation in survivors of myocardial infarction, Gerber et al. (2011) conclude that patients with low SOC should receive targeted help to quit smoking. Hall-Lord et al. (1999) and Hildingh, Fridlund, and Baigi (2008) call for improved *post-hospital support* for patients with low SOC scores. In these papers, low SOC at admission is typically interpreted as a risk factor for limited self-care after discharge, so that papers call for a specific support of these patients in discharge planning, such as proactively inviting family members into the planning process, and helping patients to identify resources they can use or rely upon at home. However, one study on chronic patients found that those with higher SOC scores had more hospital admissions while those with lower SOC scores were more trying to cope for themselves—which probably indicates that a higher SOC is also related to the ability to delegate caring tasks to healthcare institutions instead of struggling for oneself (compare Kirby, Dennis, Bazeley, & Harris, 2013).

Supporting Caring Relatives

Some papers explicitly refer to *supportive interventions for caring relatives*. In light of Antonovsky's theories, these can be understood as a resource for the patient that can be strengthened by targeted interventions. A specific focus of these papers is on the stress-coping abilities, for example, of family member of patients after stroke (Jaracz et al., 2012) or cancer (Ezer et al., 2006; Schmitt et al., 2008; Tang et al., 2013; Tzuh & Li, 2008; Yang et al., 2012). However, in a study on family caregivers of Parkinson's disease patients, the authors conclude that the SOC, although found to be relevant to their experience of the caring situation, may be difficult to influence (Caap-Ahlgren & Dehlin, 2002).

Improving the Impact of Hospital Functioning on Salutogenesis

Only few studies have an organizational perspective on options to enhance salutogenesis or the SOC, focusing not on additional patient-oriented interventions but on how hospital structures and routine care processes can be used or altered for salutogenic purposes. Concerning salutogenesis as a component in hospital policies, Buscher, Watzke, Koch, and Schulz (2004) note a clear deficit. Based on an analysis of the rehabilitative content of available guidelines for the treatment of patients with mental disorders in Germany, they conclude that none of the guidelines they examined contains explicit referrals to salutogenic aspects of the therapy. With regard to specific recommendations for change, Swenne and Skytt (2013) suggest ways to improve traditional ward rounds so as to allow for more patient participation which the authors consider essential for a good SOC. A paper co-authored by Antonovsky himself (Langius, Bjorvell, & Antonovsky, 1992) concludes that the SOC concept should be used to reflect on, and adapt, the way care is provided in hospitals, and Bruscia et al. (2008) call for an improvement in interdisciplinary cooperation to "help cardiac patients perceive life as comprehensible, manageable, and meaningful." With regard to hospital infrastructures, Hasfeldt et al. (2014) emphasize the need to keep ICU noise levels as low as possible especially to support patients with a low SOC.

Salutogenic Interventions by Different Healthcare Professions

Some authors conclude that healthcare professionals need a better general understanding of salutogenesis (e.g., Gilhooly et al., 2007; Helvik et al., 2012). The implications would be that salutogenesis and the SOC should be incorporated into the training curricula of healthcare staff. For this article, we could not assess in how far this is already the case. But we found at least one example, "The handbook of behavioral medicine" (Mostofsky, 2014) that contains several referrals to salutogenesis and its consequences for approaching patients.

Compared to doctors, nurses were more often suggested as potential providers of salutogenic interventions to patients. This probably indicates that nurses use salutogenesis as a concept for further professionalization,

and that salutogenic interventions are typically not understood as needing the specific skills of the medical profession. One paper by Menzies (2000) even describes nursing care as a generalized resistance resource in mental healthcare. And several papers outline that salutogenesis or the SOC could be used as guiding concepts for nursing interventions (e.g., Etzel, 2001; Heather, 2013; Mizuno et al., 2009; Onega, 1991; Skarsater et al., 2005). In relation to suicidality, Sjostrom et al. (2012) suggest including the SOC into nursing diagnoses. In a paper by Fok et al. (2005), nurses are recommended to design interventions to enhance the SOC in early phases of hospitalization for critically ill patients. Bergman et al. (2011) found that nurses should support patients after first-time myocardial infarction to identify their risk factors and to support individualized rehabilitation, especially by supporting comprehensibility.

Occupational therapists are another professional group mentioned in the literature. One paper by Schult et al. (2000) recommends they should use SOC measurements for working with chronic pain patients.

Salutogenesis in Relation to Hospital Staff

All in all, 24 papers with a focus on salutogenesis and hospital staff were identified and analyzed, both with regard to statistical information such as the year of publication and the provenance of the authors, and with relation to content (the use of Antonovsky's concept(s), the groups of staff addressed, and conclusions and consequences).

Papers were published between 1991 and 2014, and over time there was a clear increase of papers published annually (although not as strong as in the patient-oriented papers): While only five papers had been published in the first decennium of the observation period until 2000, there were already nine papers in the decennium from 2001 to 2010, and in the first 4 years of the third observed decennium from 2011 to 2014, ten papers had been published. Authors come from all continents with a majority from Europe (14 or 58 %), followed by Asia (5 papers or 21 %), Australia and the USA (2 papers or 8 % each), and Africa (1 paper or 4 %). The single country with most published literature in the field is Sweden (5 articles or 21 %).

Most articles have a focus on nurses (20 or 83 %). These typically refer to nurses in specifically demanding caring situations, such as cancer care (Palsson, Hallbert, Norberg, & Isovaara, 1994), palliative care (Ablett & Jones, 2007), or mental healthcare (Berg & Hallberg, 1999). Three studies are on mixed occupational groups (Hoge & Bussing, 2004; Nilsson, Andersson, & Ejlertsson, 2013; Rabin et al., 2011) and only one study explicitly addresses doctors (Haoka et al., 2010).

Quite similar to papers on patients, most of the papers on staff are related to the SOC. The majority of these papers is of quantitative character, while a small number either uses the SOC as a theoretical construct to interpret qualitative data (e.g., Ablett & Jones, 2007; Bringsen, Andersson, Ejlertsson, & Troein, 2012) or focus on the SOC conceptually (Malagon-Aguilera et al., 2012; Reid, Kruger, DeMarco, Hanley, & Conlin, 2004). The SOC is usually studied in relation to other areas of interest such as perceived work strain (Hoge & Bussing, 2004; Lewis et al, 1992; Orly, Rivka, Rivka, & Dorit, 2012; Palsson et al., 1994), perceived reward from work (Haoka et al., 2010), work–family conflict (Takeuchi & Yamazaki, 2010), self-rated health (Malinauskiene, Leisyte, Romualdas, & Kirtiklyte, 2011), and, most often, in relation to depression and burn-out in staff (Aries & Ritter, 1999; Cilliers, 2003; Kikuchi et al., 2014; Nordang, Hall-Lord, & Farup, 2010; Tselebis, Moulou, & Ilias, 2001). Studies typically conclude that lower SOC scores are related to lower levels of desired states, such as self-rated health, and to higher levels of undesired states, such as perceived work strain, conflict, or depression and burnout.

Six papers (25 %) show a more general salutogenic orientation. For example, Bringsen et al. (2012) describe focus group interviews with the aim to identify workplace-related health resources for hospital nurses, or Rabin et al. (2011) "looks at the wide spectrum of stressors found in specialists working in the mental health area ... with the salutogenic approach in the background." Nilsson et al. (2013) present a questionnaire with a salutogenic perspective to guide workplace health promotion interventions.

Implications for Occupational Health in Hospitals

Similar as in studies on patients, SOC is so far mainly used to identify staff members at higher risk of developing problematic conditions, such as burnout, and thus being in need of extra support. Low SOC seems to be widely used as an indicator for the vulnerability of staff to work-specific stressors, while high SOC typically is understood as a buffer against job strain (e.g., Malinauskiene, Leisyte, & Malinauskas, 2009). But there are also some more resource-oriented papers such as the one by Bringsen, Ejlertsson, and Andersson (2011) that has a more general salutogenic orientation and uses this lens to identify work-specific resources for staff, such as flow situations.

While some papers conclude by describing the study results (e.g., Aries & Ritter, 1999; Hoge & Bussing, 2004; Lewis, Bonner, Campbell, Cooper, & Willard, 1994; Malagon-Aguilera et al., 2012; Malinauskiene et al., 2009;

Nordang et al., 2010), others suggest interventions for improvements. Papers with a focus on the SOC often (but not exclusively) frame their conclusions more in the direction of risk orientation and risk reduction, while papers with a more general salutogenic orientation focus more on resource-strengthening. However, both perspectives come to rather similar recommendations with regard to suggestions for interventions. On the one hand, the recommended interventions refer to improvements of potentially strenuous work conditions such as high work load (e.g., Rabin et al., 2011) or generally adverse working conditions (Malinauskiene et al., 2011). On the other hand, support of individual staff members is recommended in form of supervision (Berg & Hallberg, 1999; Palsson et al., 1994), mentoring (Cilliers & Terblanche, 2014), mindfulness meditation (Foureur, Besley, Burton, Yu, & Crisp, 2013), training and peer support (Michael & Jenkins, 2001), or targeted support for staff with burn-out symptoms (Tselebis et al., 2001). Some authors also recommend a combination of organization- and individual-related interventions (e.g., Cilliers, 2003; Reid et al., 2004) as both may contribute to a better use of coping resources (Lewis et al., 1994). Bringsen et al. (2012), on the basis of a qualitative study, emphasize that different types of hospital staff may need different types of supportive interventions.

Less common and more recent are studies calling for actual improvements of low SOC in staff (e.g., Kikuchi et al., 2014). One study by Orly et al. (2012) describes the measurement of SOC scales in nurses pre and post cognitive-behavioral interventions, with significant improvements post intervention. In a similar study on the effects of mindfulness-based meditation, Foureur et al. (2013) also report positive effects, while Berg and Hallberg (1999) could not detect any significant improvements in SOC scores following supervision.

Summing up, while there seems to be increasingly strong evidence for the interrelations between SOC and the (mental) health of hospital staff, the literature is less clear with regard to the type of interventions that should be used either to compensate, or to improve low SOC.

Salutogenesis and Health-Promoting Hospitals

Since salutogenesis is referred to as one of the theoretical backgrounds of health promotion, it is worthwhile to explore in how far salutogenesis has so far been taken up in HPH, an international network initiated by WHO-Euro that aims at supporting the reorientation of hospitals toward health promotion (Milz & Vang, 1989; Pelikan et al., 2001; WHO, 1991, 1997).

HPH are based on a WHO initiative in relation to the settings approach in health promotion. They still seem to be exotic birds in the hospital world: While the ten nation states with most hospitals per country alone have more than 150,000 hospitals (according to Maps of the World), the roughly 1000 member organizations of the International HPH network make far less than 1 per mille of the hospitals on the planet.

Following the Ottawa Charter's (WHO, 1986) demand to "reorient health services," WHO had started consultation on how to bring this approach into practice in 1988, focusing on hospitals as the core organizations in modern healthcare systems. Subsequently, a model project in Vienna (1989–1997), a European pilot hospital project (1993–1997) and an international network (starting in 1990) were initiated by WHO-Euro. Since 2008, HPH is an international nonprofit association, operates in all continents and is organized in about 40 national and regional networks, coordinated by an international supra-network with a general assembly and elected governance board, and is supported by specific thematic task forces and two WHO collaborating centers (Pelikan et al., 2011; Dietscher, 2012, 2013).

Content-wise, HPHs are oriented at the Ottawa Charter's definition of health promotion which is "the process to increase control over, and to improve, one's health" (WHO, 1986). Defined target or stakeholder groups of HPH are not only patients (and their significant others) but also staff and community members (people in neighborhoods and catchment areas). From the beginning, HPH was dedicated to principles of organizational development and quality improvement, understanding health promotion not (only) as additional (consultative) services but rather as the way health promotion is addressed and integrated into the core processes of healthcare organizations, as outlined in two policy papers, the Budapest Declaration on HPH (WHO, 1991), and the Vienna Recommendations on HPH (WHO, 1997). This background was the basis for formulating 18 HPH core strategies—six main HPH intervention areas, for each of the three defined target groups. These areas or principles are (1) to support healthy living in the organization (maintaining and strengthening healthy aspects while in care or, for staff, during working life), (2) to improve co-production, (3) to develop the physical and social healthcare setting into a health-promoting environment, (4) to empower for disease management, (5) to empower for healthy lifestyles, and (6) to contribute to health-promoting community development (Pelikan, Dietscher, Krajic, & Nowak, 2005) (Table 27.6). To support linking HPH to quality management, 5 standards (Gröne, 2006) and 7 implementation strategies (Pelikan, 2007) were also developed .

Summing up, a health-promoting hospital is actively attempting to integrate health promotion criteria into its decision premises and processes, and, consequently, taking comprehensive and continuous action to promote the health

Table 27.6 Eighteen HPH core strategies (Pelikan et al., 2005)

Target group strategy	Patients	Staff	Community
Empowerment of stakeholders for health-promoting self-reproduction/self management	Developing health-promoting living conditions for patients in the hospital	Developing health-promoting work life for staff	Developing health promoting access to the hospital for citizens
	PAT-1	STA-1	COM-1
Empowerment of stakeholders for health-promoting coproduction	Encouraging patients' participation, cooperation, and co-production in treatment and care	Encouraging health-promoting work processes	Developing health-promoting cooperation's with services in the region
	PAT-2	STA-2	COM-2
Health-promoting & empowering hospital setting for stakeholders	Developing a health-promoting hospital setting for patients	Developing a health-promoting workplace setting for staff	Developing the hospital as a health-promoting environment for the community
	PAT-3	STA-3	COM-3
Empowering illness management (patient education) for stakeholders	Encouraging patients' health-promoting self-management of specific diseases	Encouraging staff's health-promoting illness management	Participate in alliances to encourage citizens for a health-promoting self-management of specific diseases
	PAT-4	STA-4	COM-4
Empowering lifestyle development (health education) for stakeholders	Encouraging patients to lead a health-promoting lifestyle	Encouraging staff to lead a health-promoting lifestyle	Participate in alliances to encourage citizens to lead a health-promoting lifestyle
	PAT-5	STA-5	COM-5
Participation in health-promoting & empowering community development for stakeholders	Developing health-promoting living conditions for patients after leaving the hospital	Developing a health-promoting community setting for staff	Participate in alliances to develop health-promoting community settings
	PAT-6	STA-6	COM-6

of its patients, staff, and the population in the community it serves (Pelikan et al., 2001). A bibliography on published literature in the field of HPH was published by Dietscher, Pelikan, and Schmied (2014).

Conceptual and Practical Interlinks Between HPH and Salutogenesis

The above-mentioned official HPH documents do not contain any explicit referrals to salutogenesis. Still, HPH has an implicit salutogenic orientation, focusing on a comprehensive concept of health and on strengthening the resources for health (e.g., by empowerment), as well as on reducing risks for diseases for a wide set of target groups, no matter where they are on the health-disease continuum.

However, while Antonovsky's general concept and also his specific salutogenic model are typically understood as a psychological concept, or rather a theory on individual coping with challenges leading to tension and possibly stress, HPH—so as other setting-oriented health promotion strategies—is more oriented toward changing organizational characteristics that are either challenging or support coping for individuals and groups. HPH aims at using hospitals as settings in which both situative and individual health determinants can be addressed by individual as well as organizational interventions. In this respect, both concepts can be interpreted as complementary: salutogenesis provides

a concept that can be pursued by the intervention strategies of HPH. Furthermore, the SOC concept and questionnaires might be interesting tools for developing HPH. Measurement tools developed by HPH itself—such as the self-assessment tool for the five HPH standards (Gröne, 2006)—assess whether health-promoting structures (and partly also interventions) are in place. The SOC could—at least in principle—be used to design specific health promotion interventions and to measure their effectiveness. Although the scientific debate on whether the SOC is ultimately shaped during childhood and adolescence or whether it can be altered in later life is ongoing, empirical data quoted in this chapter seem to support the hypothesis that the SOC of an individual can be improved or decreased also in adult life besides being taken into account by the hospital. Therefore, it seems plausible to suggest that SOC measurements pre–post targeted interventions may also produce data on the effectiveness of health promotion interventions.

As far as we could detect from the abstract books of HPH conferences that were published over the last 10 years, 33 papers—less than 1 % of all abstract published during the observation period—had an explicit referral to salutogenesis. The number of related papers submitted annually seems largely related to the respective Calls for Papers (e.g., as the program of the HPH conference in 2011 in Turku, Finland, had a focus on salutogenesis, considerably more related papers than on average were submitted that

year). Target groups and applications of the salutogenesis approach in HPH papers were quite similar as in the literature search outlined in this article. One difference however was that HPH papers also included papers on salutogenic community interventions by hospitals, probably because community citizens are one of the three explicit target groups of HPH.

Apart from the conference papers, quite a number of international HPH activities can be clearly related to one or more dimensions of the SOC. For example, HPH task forces that address topics such as health-promoting psychiatric health care, health promotion for children and adolescents in hospitals, or migrant-friendly and culturally competent hospitals, have been systematically calling for better comprehensibility and manageability especially for vulnerable groups by adapting healthcare services to the needs of these groups.

Discussion and Conclusions

In this chapter, we contrast our theoretical considerations on the role salutogenesis could play in hospitals with the topics actually covered in the available reviewed literature. We will then discuss the limitations of our approach and suggest some resulting needs for further research.

A General Salutogenic Orientation and the Salutogenic Model

The literature in the hospital field that relates to a general salutogenic orientation of the hospital setting is scarce, as is the hospital-related literature referring to Antonovsky's complex salutogenic model. The few examples that exist remain rather normative and vague when it comes to concrete recommendations for resulting interventions to develop hospital's structures, cultures, and processes. While there exists some literature and research concerning the role of salutogenesis for the role and work of nurses, salutogenesis for and by medical doctors still is a potential to be discovered and implemented.

Concerning the general salutogenic model, in light of the available literature, especially three desiderata remain that provide ample room for future research and practice. First, following Antonovsky, a salutogenic approach means a consequent orientation at resources (not just risks). But a practical and hospital-specific (and partly even diagnosis-specific) concept and typecast of the health-relevant general and specific resistance resources of patients (and staff), as well as of interventions to activate them, is still lacking. Next to person-related resources such as physical, mental, and socio-economic resources, as well as personal lifestyles, this

typecast should also comprise resources related to the functioning of the hospital itself and to the way hospital core processes are run, as suggested by some of the papers quoted in this chapter. These hospital-internal resources would include caring styles, options for patient participation in treatment decisions and care, the support of patient health literacy (compare e.g., Brach et al. 2012), or the kind of support available at discharge, or when progressing from hospitals to other providers of care. Second, a set of applicable interventions that can effectively activate these resources, as well as evidence on their effectiveness, would be required. Third, it would be necessary to understand salutogenesis as a feature of organizational quality, not only as characteristic of interaction between individuals, and thus to develop and evaluate models for developing salutogenic organizational structures and capacities for supporting the salutogenesis of the people affected by these organizations.

Furthermore, with regard to Antonovsky's comprehensive salutogenic model, practically none of the papers refers to the model in its totality. If at all, papers used concepts such as coping with stress, or generalized resistance resources. Against this background, especially a more thorough reflection of the stressors hospitals themselves produce by their way of functioning, and measures to avoid them, would be desirable.

The Sense of Coherence

The vast majority of the literature retrieved for this article somehow relates to the SOC. However, the SOC is, rather paradoxically, widely used with a risk perspective rather than a resource perspective. By use of the diverse available SOC questionnaires, the SOC is typically treated as a diagnostic concept. Mainly, a low SOC score is understood as a risk factor for numerous conditions. And most studies treat the SOC as an absolute or fixed personality trait but do not reflect on how hospital structures and processes themselves can impact on the SOC and its dimensions of comprehensibility, manageability, and meaningfulness.

Which Intervention Approaches are Suggested for Whom?

In line with the outlined research perspectives, the salutogenic interventions suggested by the authors of the retrieved papers are, in line with medical interventionist thinking, mainly person-oriented, and here again, mostly relating to hospital patients, mainly with rather severe diseases. Few also address hospital staff, but rarely medical doctors and hardly any the people in the hospitals'

communities. Most papers refer to compensating for patients' limited SOC with specific supportive interventions. Only a minority of papers has an organizational approach, considering how the hospital functioning as such could reduce stress and improve comprehensibility, manageability, and meaningfulness for patients, staff, and visitors alike.

Furthermore, in contrast to Antonovsky's demand to "encompass all persons, wherever they are on the continuum" (Antonovsky, 1996, p. 14), the available research on salutogenesis and hospitals has a clear focus on the disease side of the continuum, widely treating limited SOC as a risk for self-perceived health, self-management, and quality of life.

Needs for Further Research

The literature reviewed for this article had no homogenous understanding of salutogenesis or the SOC. There seems to be good evidence for positive interrelations between salutogenesis, especially the sense of coherence, and subjective health, quality of life, and self-care ability. There is also evidence for positive interrelations between the SOC and mental health. However, it remains unclear and widely depending on the study perspective whether the SOC is viewed as a predictor, mediator (Tang et al., 2013), or moderator of desired outcomes, or even as an outcome itself. For example, while some authors see the SOC as a predictor of symptom severity, others interpret symptom severity and specific personality traits as impacting on the SOC. And in the emerging field of research on the SOC being an amenable concept, SOC levels are viewed as an outcome of interventions. Thus, it seems that more conceptual clarity on the role the SOC actually plays in relation to health still needs to be achieved and more complex designs to research this are needed. Furthermore, research is needed on the question why there is clear evidence for interlinks between the SOC and subjective health but hardly any proof for the SOC's impact on dimensions of health that do not appear directly related to subjective well-being or personal self-management.

When it comes to researching salutogenic interventions, we would argue that more emphasis should be given to researching the impact of hospital functioning and organizational interventions on salutogenesis or the SOC, and for person-oriented interventions, that more systematic research on the effectiveness of these interventions would be needed.

Finally, we suggest further research on the potential applicability of SOC measurements to assess the outcomes of health promotion interventions, both on the level of organizations and individuals, as well as concepts and research on implications for healthcare financing and healthcare curricula.

Limitations

The empirical part of this chapter is widely based on a systematic literature search and on a content analysis of abstracts of published research that contain explicit referrals to salutogenesis in relation to hospitals. Because of the inclusion and exclusion criteria that were decided upon, some papers that might be relevant for the context of this paper may have been overlooked if they do not contain explicit referrals to Antonovsky's concepts.

Furthermore, because of resource constraints, our analysis of the reviewed articles was limited to the abstracts of the retrieved and included papers. Since our main aim was to develop an overview on the topics that are already covered by hospital-related research in relation to salutogenesis, we consider this methodological decision justifiable. Still, more details could of course have been gained by a thorough analysis of the full papers.

As far as health promotion in hospitals is concerned, the international Network of Health-Promoting Hospitals and Health Services represents only a scarce but systematic and explicitly declared part of actual health promotion in hospitals. There is much more health promotion going on in hospitals, also without using the label, which also will have its links to salutogenesis.

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The Application of Salutogenesis in Mental Healthcare Settings

Eva Langeland and Hege Forbech Vinje

Introduction

Aaron Antonovsky's crucial theoretical preposition was that how human beings perceive reality in terms of comprehensibility, manageability, and meaningfulness, which together form sense of coherence, contributes to coping, health, and well-being. Research shows that sense of coherence is especially related to mental health (Eriksson & Lindstrøm, 2006). Mental health in a salutogenic perspective refers to a person's position, at any point in the life cycle, on "... a continuum that ranges from excruciating emotional pain and total psychological malfunctioning at one extreme to a full, vibrant sense of psychological well-being at the other" (Antonovsky, 1985, p. 274).

Although Antonovsky was a researcher and not a clinician, he claimed that salutogenesis "has something to say to all those who, professionally and personally, are committed to understanding and enhancing the adaptive capacities of human beings" (Antonovsky, 1979, preface p. viii). His challenge to different health professionals revealed that he wrote not only for his major reference group; his colleagues in medical sociology. He mentions sociologists, psychologists, psychiatric nurses, physicians, healthcare organizers, epidemiologists, architects, and community organizers as his intended audience (Antonovsky, 1979, preface p. viii).

Since Antonovsky was primarily a researcher, he did not work so much with the operationalization of salutogenesis in clinical settings, even if he did present some cases that reveal the difference between a salutogenic and pathogenic approach (Antonovsky, 1987, p. 9–10). The relevance of applying salutogenesis in clinical settings is obvious, and Antonovsky suggested that every health professional should include aims in their clinical practice that promote peoples' sense of coherence.

Health promotion in mental healthcare may work at three levels: strengthening individuals, strengthening communities, and reducing structural barriers to mental health (WHO, 2005). This involves a reorientation from the medical model to a more inclusive and holistic one. It could be said that the professional mental health promoter has a role as an expert in mental health in general. At the collective level, the professional mental health worker aims to develop structures that enable people with mental health problems to empower themselves, through for example gaining access to and making use of resources like material goods and social services. At the individual level, the professional aspires to be an expert and to create a conversational and interactional climate that will promote desirable change for and in the recipient of the mental healthcare service. A fundamental attitude is that people are experts on themselves and their unique situations and experiences, including their pain, suffering, and concerns. Subsequently, the professional mental health worker functions more as a dialog partner, balancing between listening empathetically to participants' difficulties and taking into account their strengths and resources (Duncan, Miller, Hubble, & Wampold, 2010).

Mental Health and Mental Health Challenges

Antonovsky (1985) claims that our role as scientists or therapists concerned with mental health is to gain increased understanding of the challenges posed in the life cycle of the human being and the factors which shape the selection of

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responses. Antonovsky describes the movement on the continuum toward better mental health as shifting:

> …—from the use of unconscious psychological defence mechanisms toward the use of conscious coping mechanisms;—from the rigidity of defensive structures to the capacity for constant and creative inner readjustment and growth;—from a waste of emotional energy toward its productive use; from emotional suffering toward joy;—from narcissism toward giving of oneself;—from exploitation of others to reciprocal interaction (Antonovsky, 1985, p. 274).

In the present chapter, mental illness, mental suffering, mental disorders, mental problems, and psychosocial problems are conceptualized as *mental health challenges*, in concert with the salutogenic model of health. Antonovsky (1985, p. 274) emphasized that he used the word challenges rather than stressors, conflicts or problems; the latter imply an unwelcome burden, while 'challenges' is far more open to initiating an interaction which may end catastrophically … or joyfully. Further, 'challenges' is less disease-focused and encourages one to keep in mind that, despite suffering from mental illness, there always is some level of health and resources present that can be recognized, utilized, and nurtured. It thus corresponds more to the positive mental health concept and that tension, the state of psychophysiological responses of the organism to challenge, is not necessarily pathogenic (Antonovsky, 1985, 1987; Berger, 2003; Langeland, 2007).

Applying Salutogenesis in Mental Healthcare Settings

While salutogenesis is a design for health, pathogenesis is a design for disease. However, the traditional perspective or design in healthcare has been and still is pathogenesis. Becker and Rhynders (2013) illustrate this by referring to a presentation by Deming (2000) that uses a marine metaphor and asks, "What determines how fast a ship moves?" The answers include currents, sails, the crew and the weather. All these factors may of course have an impact on the speed. However, only the ship designer determines the capacity of how fast a ship might move, regardless of the conditions. For health, our design has been pathogenesis, a design for disease. Salutogenesis provides a new design that enables faster progress toward better health by helping health professionals' practices to be about health (Becker & Rhynders, 2013).

Jormfeldt (2011) illuminates this through an example of how a focus on diagnosis (pathogenesis) versus a focus on the person (salutogenesis) might be displayed in clinical mental health work. When looking at schizophrenia from a biomedical point of view, medication and the person's compliance is emphasized. It is easy to understand that the

individual's motivation to sustain hope is reduced in such a context. In a salutogenic perspective, the attention is to the individual's own experience including history, wishes, dreams, and experiences here and now. If medication is applied, it is for supporting the person to achieve one's own goals.

Salutogenic Talk Therapy

The first intervention program based on the entire salutogenic model of health and aimed to strengthen sense of coherence as a main outcome was developed by Langeland, Wahl, Kristoffersen, and Hanestad in 2007 (Yamazaki, Togari, & Sakano, 2011) and further developed in Langeland and Vinje (2013). This intervention was implemented in talk-therapy groups for people with mental health challenges. It has been evaluated in a randomized controlled trial, showing positive effects on the sense of coherence. In addition, an evaluation performed by the study's participants revealed that between 85 and 95 % experienced their participation as contributing greatly to improving their mental health in everyday life (Langeland et al., 2006).

The main aim of this salutogenic approach is to increase participants' awareness of and confidence in their potential, their internal, and external resources, and their ability to use these to increase their sense of coherence, coping, and level of mental health and well-being. In applying, a salutogenic approach one is encouraged to search for and identify individual and collective generalized resistance resources that may promote the effective management of tension in demanding situations. Higher levels of generalized resistance resources are associated with a stronger sense of coherence. Due to the changing nature of human/environment interactions, it is not possible to make a list and identify all possible generalized resistance resources. Therefore, Antonovsky (1979, p. 99) formulated the following definition: "every characterization of a person, group or environment that promotes effective management of tension." The relationship between resistance resources and the sense of coherence is reciprocal (Antonovsky, 1979, Landsverk & Kane, 1998). For example, social support leads to a stronger sense of coherence, which enables a person to mobilize and make use of social support. When people experience concordance between their use of generalized resistance resources and their expectations, wishes, and demands, life's challenges are experienced as appropriate and thus tension is transformed into coping. The experience of appropriate challenges (balance between overload and overload) in daily life strengthens sense of coherence (Langeland et al., 2007).

In this regard, it is crucial to understand tension as potentially health promoting and to distinguish between tension and stress (Antonovsky, 1987, p. 8). Tension is understood as a normal and necessary feeling for coping. The concept of *flow* (Csikszentmihayi, 1997) may shed some light on the significance of appropriate challenges and the strengthening of the sense of coherence:

> Flow tends to occur when a person's skills are fully involved in overcoming a challenge that is just about manageable. Optimal experiences usually involve a fine balance between one's ability to act and the available opportunities for action (Csikszentmihayi, 1997, p. 30).

Accordingly, the key is to acquire good coping experiences by perceiving appropriate challenges. Lutz (2009) suggests that flow may be sense of coherence experienced in the here and now, while sense of coherence is also a product of flow over time. Figure 28.1 illustrates the positive interplay between sense of coherence and use of resistance resources. The person is an open system that contains social, psychological, and genetic subsystems, but it is the integration of the whole that is emphasized in the concept of sense of coherence (Sullivan, 1989).

In the talk therapy setting, the aim is to promote a person's sense of coherence, it is thus important to support the individual's understanding of her own situation and diagnosis. A high level of comprehensibility promotes a good capacity to judge reality (Antonovsky, 1979, p. 127). Langeland et al. (2007) suggest defining diagnosis as but one dimension of the person; a fundamental aim is that the person with a diagnosis experiences and understands herself primarily as a person and not as a diagnosis. This is crucial in order to prevent the stigmatization that can follow if everything that a person says or does is interpreted in relation to the diagnosis. When this happens, the person loses the right to be a human being with normal feelings and thoughts. Human beings construct meaning and coherence by telling their own stories, and it is important to emphasize the coping in their stories in order to assist the person in developing a constructive narrative identity.

Another critical feature of the talk therapy setting is that the person identifies internal and external resources that make her manage the situation better. The emphasis is on what functions to promote the person's health. This includes increased consciousness of resources and support factors that function well in a person's life. Internal and external resources might include culture, outdoor life, music, humor, relationships, adaptive strategies, coping strategies, good inner dialog, reflection, and knowledge acquisition.

Further, the talk therapy setting is partly dedicated to support a person's exploration of what give life meaning. Mental health is much more than and not necessarily the lowest level of suffering. For example, an individual that wants to commit suicide needs—in addition to action that

THE INTERPLAY BETWEEN RESISTANCE RESOURCES AND SOC
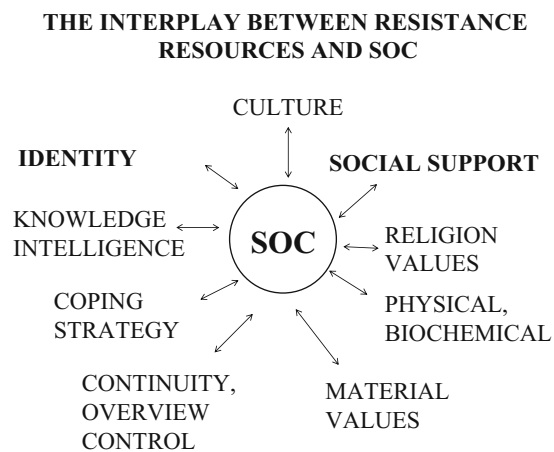
Fig. 28.1 The interplay between resistance resources and the sense of coherence

prevent her from succeeding—facilitation to find out what make life worth living. According to Antonovsky, one has to invest in inner feelings, immediate personal relationships, major activity, and existential issues (Antonovsky, 1987, p. 139), if one does not want to lose resources and meaning over time. This means, as Lindstrøm (2001) explains, that it is important to be able to form a view of life (ideological, religious, or political), to know people one perceives to be supportive (the function of social support), to have mental stability, and to be involved in rewarding everyday activities, such as work, sports, education, etc. In salutogenic talk-therapy groups, an important part is homework based on these crucial spheres. Langeland et al. (2007) gives examples of such homework. The homework might function as an inner voice, much like a continuation of the group, which helps to increase the impact of the group.

Finally yet importantly, the main focus in salutogenic talk therapy is to draw attention to a person's adaptive capacity and the ability to activate adaptation (individually tailored) to various challenging situations through creative processes, thus promoting sense of coherence in everyday life (Table 28.1).

Other Perspectives on Salutogenesis and Therapy

Consistent with the experience of talk therapy just described, Griffiths (2009) concluded in a literature review that it might be advantageous to include therapy goals based on the sense of coherence in mental health rehabilitation with people having various mental health challenges such as schizophrenia, psychosis, addiction, and depression. Menzies (2000) elaborated on how a psychiatric nurse might apply a salutogenic approach to a person diagnosed with

Table 28.1 A mental health promotion process based on the salutogenic model of health (Langeland et al., 2007)

Salutogenesis	Salutogenic principles	Desired outcomes
1. **Health as continuum**	– **Movement toward health**	– *Increasing tolerance for various feelings*
	– **Universalizing mental health problems**	– *Improving active adaptation*
	– **Introducing the metaphor of the stream of life**	
2. **The story of the participant**	– **Diagnosis as a narrow description**	– *Experiencing oneself as a person*
	– **Listening to the participant's narrative identity: Shedding light on individual coping ability**	– *Structuring life experiences that reinforce sense of coherence*
		– *Increasing perception of coping in the narrative identity*
3. **Health-promoting (salutary) factors**	– **Extending coping resources**	– *Improving self-identity*
	– **Paying attention to what is currently functioning well and asking questions to increase the awareness of resources**	– *Increasing perception of the quality of social support such as attachment, social integration, opportunity for nurturing, reassurance of worth, reliable alliance, and guidance*
	– **Promoting resistance resources, particularly social support and self-identity**	
4. **Stress, tension and strain as potentially health promoting**	– **Discussing appropriate challenges**	– *Increasing acceptance of one's own potential and coping ability*
	– **Universalizing the feelings of tension**	– *Experiencing one's resources*
5. **Active adaptation**	– **Promoting a climate of unconditional positive regard, empathy and genuineness**	– *Experiencing motivation for change*
	– **Developing participants' unique capacities**	– *Thinking more salutogenic and developing positive patterns for health promotion*
	– **Developing crucial spheres in human existence**	– *Increasing perceptions of comprehensibility, manageability, and meaning; improving SOC*

schizophrenia: talking about managing and coping with symptoms and problems, fostering hope by discussing possibilities, and supporting increased consciousness of abilities and skills, thus contributing to self-esteem, identity, and sense of coherence.

Joachim et al. (2003) discussed treatment of obsessive–compulsive disorder based on strengthening the sense of coherence: based on a literature review they illuminate how emphasizing comprehensibility, manageability, and meaning help improve self-efficacy, coping, and control, and reduce vulnerability and repeated compulsions. Since comprehensibility includes how one perceives stimuli from internal and external surroundings, the first aim in this therapy is to increase comprehensibility. Manageability might be increased by identifying specific strategies to tackle challenges such as the side effects of medicines, compulsive symptoms, and changes in thoughts and actions, thus creating coping experiences. The alliance between therapist and client is emphasized, and an atmosphere of trust and accept is basic. Meaning is explored as the client is helped coping better with anxiety and becomes more able to explore spheres in life that he/she earlier has avoided. Hence, purpose and meaning in life are enhanced. Vital in this program is not to find the reasons for the suffering, but rather to develop strategies to change thoughts and actions. To structure treatment of obsessive compulsive disorder using sense of coherence as framework facilitates exploring emotional reactions and developing constructive patterns by encouraging acceptance, stimulating new strategies, and managing negative feelings. Accordingly, the person is strengthened in his/her efforts to take more responsibility for own health and discover resources and relations that promote growth and well-being in his/her everyday life.

Landsverk and Kane (1998) show how salutogenesis and the sense of coherence concept might be used as a theoretical basis for 'psychoeducation' that strengthens stress-reducing skills, promotes assertiveness, and recognition and mastery of symptoms. Also, central to this strategy is raising awareness of social support and a supportive environment, and enabling the person in identifying, assessing, and using the resources available. In addition, they emphasize that to share coping stories creates optimism and confidence in own strengths.

Social Support

Since social support and self-identity (in bold in Fig. 28.1) are crucial resistance resources (Antonovsky, 1987), these are further elaborated here. Different types of social support provide different resistance resources (Cutrona & Russell, 1987). Because life situations vary in adaptation demands, a given type of social support will be effective only when the resistance resource it provides is matched to the demands of the situation (ibid). Weiss (1974) has identified six social functions or provisions that might be obtained from others:

attachment, social integration, opportunity for nurturance, reassurance of worth, reliable alliance, and guidance. This finer-grained approach to the conceptualization of social support could have important implications for mental health interventions. In talk therapy, an attempt could be made to emphasize explicitly these six relational provisions. For example, talk therapy group facilitators might try to increase group members' awareness of opportunities for nurturing. Research reveals that the ability to give nurturance is especially important in raising consciousness among people with mental health problems, because they often are recipients of care; accordingly, their coping may be strengthened (Langeland and Wahl 2009). Their strengthened social competence may subsequently be applied in other settings.

Salutogenic Self-Identity

Mental health professionals often wish to be able to facilitate the development of positive self-identity in their clients. Positive self-identity is a vital resistance resource (Antonovsky, 1987), and a crucial aim in talk-therapy groups based on salutogenesis. For example, one might encourage a client to undertake constructive actions or activities whose rewarding outcomes improve self-identity. Increasing participants' consciousness of their own possible choices in different challenging situations is therefore key in salutogenic conversations. As an example of this, Magrin, Bruno, Gheno, Scrignaro, and Viganò (2006) have developed a psychological intervention named *The power of stress: a salutogenic model of intervention*. The aim is to develop a salutogenic coping style through concentrating on finding meaning and thus promote identity. A crucial acknowledgment is that well-being is a continuous process that individuals themselves are influencing. An important element in the intervention ala Magrin et al. (2006) is the salutogenic understanding of tension. Tension is a normal feeling when facing challenges and it is essential to accept this; otherwise, a person does not experience coping and thus develops a stronger identity. Magrin et al. (2006) suggest that tension might be seen as the 'salt of life.' The intervention consists of two phases and the first is to discover meaning through working with identity. The phase focuses on Individuals explore who they are by working with desires for life and how they understand tension and stress. The aim is to perceive tension as a salutogenic factor in one's internal and external environment. Phase II focuses on developing the courage to live as one wishes. In this phase, the individual moves from getting in contact with one's own potential, to acknowledging own ability to take action and realize own competence, and through that experience the positive potential of tension and gradually developing a salutogenic coping style.

Højdahl, Magnus, Hagen, and Langeland (2013) have developed an intervention based on salutogenesis for convicted women called the VINN-program ('vinn' is the Norwegian word for 'win' or 'overcome'). The intervention concentrates on teaching participants how to identify and mobilize coping resources in order to meet and manage demands, risk-situations, and stressors, thus promoting identity and the sense of coherence. Homework, relaxing exercises and every group session is structured around the topics identity, health, and relations. Moreover, the participants are encouraged to search for and identify meaningful activities to engage in. Each participant's personal motivation and commitment to change behavior is purposefully stimulated, within a group atmosphere of acceptance and compassion (ibid).

Social support and identity are very closely related as an individual's identity is developed through social relationships. While Antonovsky uses the metaphor about health in the river of life and active adaptation by swimming (Antonovsky, 1987), the Norwegian professor Per Fugelli uses the metaphor of 'dancing with your flocks,' and claims that your identity is formed by how one dances with one's flocks such as one's family, colleagues, and friends (Fugelli, 2012). This is why the qualities of our flocks are so important. A good life is not promoted in social isolation; it is created in flocks with qualities that foster dignity, belonging, and safety (Fugelli, 2012). Related to this idea, we have followed the progress of salutogenic talk-therapy groups, and we have clear evidence for a process stimulating active adaptation and coping with tension, based on the interplay of social support and identity (Fig. 28.2). It is particularly apparent that it is the trustful climate of a group that encourages the opening up of one to oneself, and to other group members (Langeland & Vinje, 2013). The willingness to reveal one's vulnerability in the caring, accepting, and trustful group atmosphere is characteristic of these groups. Salutogenic talk-therapy groups seem to be an important resource that stimulates health-promoting processes.

Conclusion

This chapter emphasizes the importance of high quality social support in interplay with positive identity development. Social support and identity are crucial resistance resources when applying salutogenesis in mental healthcare settings. The issues of social support and identity are germane in any discussion of group therapy, but a salutogenic orientation gives explicit attention to their interplay as resistance resources. Of course, the research base is never complete and the utility of salutogenic approaches needs to be further explored. Yet, examples presented in this chapter illustrate how a salutogenic orientation can be used to both

Fig. 28.2 Salutogenic talk therapy group climate
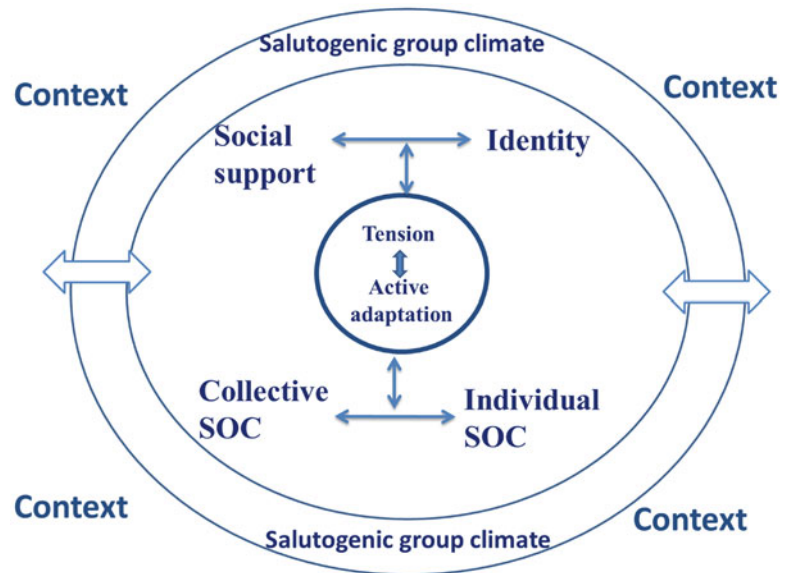
formulate and to form interventions in mental healthcare settings. While intervention research is still quite limited, some experimental evidence is presented in the chapter that indicates both the feasibility and the effectiveness of taking a salutogenic orientation into the mental health setting.

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Introduction

> Developing a competent health promotion workforce is a key component of capacity building for the future and is critical to delivering on the vision, values and commitments of global health promotion (Barry, Allegrante, Lamarre, Auld, & Taub, 2009).

Barry and colleagues wrote this in 2009 and presented simultaneously the results from the Galway Consensus Conference on the development of core competencies for health promotion and health education. The core domains of competency agreed to at the meeting were catalyzing change, leadership, assessment, planning, implementation, evaluation, advocacy, and partnerships (Barry et al., 2009). At the seventh WHO Global Health Promotion Conference held in Nairobi the same year, Sir Michael Marmot described a dilemma concerning this very issue. He stated that The Ottawa Charter (WHO, 1986) being the mission statement for Health Promotion, very clearly describes what to do and how to do it, but that too little is happening. Sir Michael claimed that this was not due to having too few resources or not seeing possible solutions, but due to lacking skills in translating what we know into good use where it's needed (Lindström & Eriksson, 2010). The Nairobi meeting came up with two main strategies for developing the field of health promotion in the following years: (1) translating research findings into practice and (2) building competence in health promotion. Since Nairobi and Galway in 2009, there has been an ongoing effort to clarify what skills a health promoter needs to work systematically and purposefully.

We have been teaching mental health, health promotion, and salutogenesis to students on bachelor, postgraduate, and master levels, and to a variety of already trained health professionals for approximately 15 years now. Our teachings are directed primarily at people who are, and have been working actively in their professions for a good while and who want to expand their expertise in health promotion for using it in their professions. Therefore, during their education they need to learn how to translate theoretical knowledge into practical skills, and how to engage in health-promoting activities when returning to work with their acquired degrees. As we see it, promoting health is to identify and use the experienced scope of action one perceives to have in a given situation, and to do this in an ethically acceptable way, with emphasis on emphatic concern and social responsibility.

From a salutogenic perspective, health is strengthened or weakened depending on how resources are put into good use, and how everyday activities are organized and carried out. The consequences of health promotion initiatives are not just dependent on the activities in themselves, but also on how one implements them. Alongside gradually expanding their theoretical understanding, the students need to reflect upon and make use of their own practical experiences in a variety of exercises. The goal is that the students develop practical skills and relational competence when it comes to supporting and promoting health-promoting processes one-on-one, and at a group- and community level. We find that relational competence is the key to succeeding in this endeavor.

To support health professionals in developing their salutogenic understanding and health promotion skills, there is a need for more high-quality research and wider distribution of the resulting knowledge. Such research will potentially advise policy-makers and health service administrators to reallocate resources and make it possible for health workers to expand their competence and fill roles as health promotion practitioners as well (Catford, 2014; McHugh, Robinson, & Chesters, 2010). There is a need for

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Table 29.1 A summary of main aspects of the salutogenic and the pathogenic orientations as presented by Antonovsky in Unraveling the Mystery of Health (Antonovsky, 1987). The author's illustration

Salutogenic orientation	Pathogenic orientation
Heterostasis	*Homeostasis*
Health ease - dis/ease continuum	Healthy/sick dichotomy
The history of the person	The person's disease/diagnosis
Salutary factors	Risk factors
Stressors and tension might be pathogenic, neutral, or salutary	Stress is pathogenic
Active adaptation	The magic bullet
The "deviant" case	Hypothesis confirmation

health professionals to take on a more salutogenic (Lindström & Eriksson, 2010) and person-centered approach (McCormack & McCance, 2010), in order to understand individual needs in light of the contexts they are part of, and assist in keeping people well and living healthier lives.

In our experience, really grasping the differences and consequences of working within a salutogenic paradigm is difficult. Antonovsky himself was doubtful of the task: "I have no illusions. A salutogenic orientation is not likely to take over. Pathogenesis is too deeply entrenched in our thinking . . ." (Antonovsky, 1996, p. 171). We find that exploring and reflecting together with our students about tensions in and between the two different paradigms (salutogenesis vs. pathogenesis) is a very educational task that we return to often. It is also a constant task to consider how the two perspectives complement each other in public health and healthcare services (see Table 29.1).

However, our aim is that students return always to the understanding of:

- Health as a continuum.
- The normalcy of stressors and tension in everybody's lives.
- The need to understand the person in his/her context.
- The activation and use of resources to counter tension.
- The goal of adaptive coping and enhancement of health and well-being. These areas are useful for gradually understanding the important differences between the two perspectives.

Alongside this, we also stress that taking a salutogenic stance implies exploring what it could mean to apply a settings approach in each situation. The settings approach shifts the focus of interventions from the individual to creating conditions supportive of health and health behavior (Green, Tones, Cross, & Woodall, 2015). However, it does not minimize the need to understand the person in his/her context; the health-promoting activities chosen will always have to stem from such a person-centered approach.

When one's work is inspired from a thorough understanding of salutogenesis, health professionals will encourage attitudes and actions that reflect knowledge about health, possibilities, and resources. This means, however, that the knowledge has to be integrated in the health professional in a way that reflects that she really understands what it means to focus on the promotion of health. We find that working salutogenically means that a health professional is in a continuous learning process in which she engages in creative interplay with individuals and groups to identify health determinants and mobilize resources that promote the sense of coherence, health, and well-being. All the core domains of competency suggested by Barry and colleagues (2009) are highly relevant, but there is a need to add a specific focus on the relational, conversational, and dialogue competency to practice one's professional competency in a fully engaged way.

Teaching Salutogenesis in Different Settings

We will now give three different examples of educational programmes. These programmes are based on the theory and understanding presented above and more fully in the discussions below. In a variety of ways, we teach from this knowledge base. Every hour, every lesson, and every day of the programme only has a tentative plan. The level of success is highly dependent on our ability to read what is at stake and in play in the group of students, and to adjust to it. In other words, we constantly develop our own skills in self-tuning (Vinje & Mittelmark, 2006), building our own, and stimulating students' salutogenic capacity (Vinje & Ausland, 2013) in a continuous gain spiral. Following the examples, we will give a more in-depth discussion of the principles and theoretical ideas presented.

Example 1: Teaching Salutogenesis to Health Promotion Generalists

This is a master's degree programme for students from various health professions. It was originally developed to offer master's students in health promotion a specialization in salutogenesis. The programme has eventually found its way to students in other master's programmes and to health professionals currently working in their specific fields, and we include students from these different areas in a mixed group. The students meet for 3 days each month for a total duration of 3 months. The students have two individual reflection exercises during the programme, for example:

Individual Essay: Own Stress and Coping Narrative in Light of Salutogenesis

Describe one or two situations you usually experience as stressful. Be specific and describe the situation(s) as detailed as you can. Describe thoughts, feelings, and how you feel in your body and what you usually say and do in relation to the people involved. Describe then how you usually handle such situations. Focus again on bodily expression, thoughts, feelings, and relational factors. Reflect about your experiences in light of salutogenesis as described by A. Antonovsky.

These individual essays are written in an essayistic style suggested by Bech-Karlsen (2003) that we find helpful in developing sensibility, and thus helpful to assess achievement in relation to learning objectives. The essayistic writing style is about introspection and being able to describing specific situations from own lives and/or practice. It is a goal to learn to discriminate between describing what is, interpreting it, and reflecting on it (ibid). The purpose is to practice receiving signals from own senses, emotions, thoughts, and body reactions and to write these signals down, describing them as detailed as possible, and subsequently reflecting on what one has found and what it means when it comes to coping with one's current situation.

The students work in the same groups of 3–5 members throughout the programme. The groups work together on a topic relevant to salutogenesis, and they also explore how to develop salutogenic group processes, for example:

Group Assignment, the Task Is Twofold

(1) On the basis of a real or constructed health promotion programme, the group considers how to promote the well-being/quality of life in a selected setting (home, school, workplace, or community). The group describes the situation and discusses it in light of the salutogenic model of health as presented by A. Antonovsky.
(2) The group aims at developing a salutogenic group process, and describes and reflects on the process in the group during their work on the task presented in (1).

At the last session, the group gives a 30-min presentation of their work *and* the group process. This is discussed with the other students and teachers. After this feedback, the group finalizes their assignment and:

- The thematic part of the assignment is submitted and evaluated separately
- The groups' joint reflection on the group process is submitted and evaluated separately
- Individual reflections on the group process are submitted and evaluated separately

An individual home examination is undertaken over 3 days, building on this same idea. Based on a real or constructed case to initiate and support a health promotion process, working one-on-one, in groups, in a workplace, or in the local community, the student describes and reflects in light of salutogenic theory and discusses their role and influence in the approach selected.

It is a goal that this programme is health promoting for the students attending it. We therefore strive to live as we preach. We believe students' evaluation show that we have a strategy that supports this goal. Because of students' evaluations, we cannot emphasize strongly enough this notion of being salutogenic in the learning environment; it is said by students to be crucial to their understanding of salutogenesis. Students' evaluation also urges us to place great emphasis on the creation of groups to support the group process from day one in the programme, and to have the groups meet everyday that we are gathered. Below is an outline of the learning outcomes the programme aims to achieve:

Knowledge
- The student has advanced knowledge of the salutogenic model of health as presented by Aaron Antonovsky.
- The student has an overview of other salutogenic theories and relevant salutogenic research.
- The student has advanced knowledge of the phenomena of health, disease, meaning, well-being, and quality of life in today's society.
- The student has a thorough knowledge of health-promoting processes in individuals, relationships, and groups.

Skills
- The student can assess possibilities and challenges by adopting a salutogenic approach in practical health promotion and research.
- The student has skills in using own practical experiences as a basis for systematic reflection on health-promoting processes.
- The student has basic skills in supporting and promoting health processes in working with others.
- The student can critically evaluate choices of methods and own role in health promotion work.

General Competence
- The student has knowledge about the salutogenic perspective's relevance and value in relation to the discipline of health promotion.
- The student can critically evaluate values and ethical issues in applying a salutogenic approach in practical health promotion and research.

Table 29.2 Example of a reflection note from a student: facilitating brain storming in a group

Descriptive reflection: action/what did I do?	Analytical reflection: what did I learn?	Constructive reflection: planning/how can I improve?
1. When I finished introducing the theme for the discussion, people began to speak all at once. Some started writing down their ideas and others started discussing the theme loudly	I felt uncomfortable in the role as facilitator, because the process was chaotic and no one seemed to listen to me, or listen to each other. The group did not finish in time	Next time, before I start, I will give instructions to the group on how to do brainstorming, and I will clarify the facilitator's role and the time limit given
2. Before introducing the theme for brainstorming, I handed out instructions for how to do brainstorming (individual time to be aware and self-reflect, taking turns, active listening, noticing each other)	All the members worked individually first, all members in the group talked, not only the talkative. Everyone listened and everyone talked	Instead of the facilitator giving instructions, the group itself can agree on their own instructions for how to do the brainstorming

- The student can critically evaluate moral dilemmas in efforts to promote and support health-promoting processes in others.

The learning activities are a mixture of lectures, practical exercises, reflections, and discussions, teamwork and individual work between sessions. Except for the first day, each day begins and/or ends with 30 min of reflection about the topics of the day. When this is to be done, the room is rearranged: the tables are removed and chairs are set in a circle. We focus on descriptive reflection (action/what have I done), analytical reflection (what did I learn) and constructive reflection (planning/ how can I improve) (see Table 29.2). Sometimes we take rounds in the circle of seated students, wherein all are invited to speak (however, it is always possible to pass). Other times we have an "open window," where the one who has something on her/his mind takes the word. The focus is on the day's theme; its contents, understandings, benefits, challenges, processes, interactions, and that may have come into play in the group during the day. The main objectives of these "reflection circles" are threefold:

1. Increasing the learning effect of the current topic.
2. Practicing reflection and practicing putting into words how it is to be part of the group, what one needs to understand more fully, what one needs to feel good in the group, and to progress in one's professional development.
3. Continuously assessing and evaluating the programme to allow for changes to reach the described learning outcomes.

Example 2: Teaching Group Leaders of Salutogenic Talk-Therapy Groups

Professional salutogenic healthcare places special responsibility on health professionals (Oliveira, 2015). Oliveira points out why, explaining that working salutogenically might involve supporting people in uprooting and changing health detrimental situations, counseling in establishing new relationships and activities, and facilitating and joining in dialogues about finding meaning in everyday life (ibid). These practices call for competence in assisting others in developing and activating resources such as social support and identity, arranging for appropriate challenges, thus promoting good coping experiences and subsequently, a stronger sense of coherence (Langeland, Wahl, Kristoffersen, Nortvedt, & Hanestad, 2007). In our work with salutogenic talk-therapy groups (Langeland et al., 2007), we find Oliveira's claims to be highly relevant. Thus, these claims are important aspects for us to include in training programmes for mental health professionals who wish to lead such groups.

A salutogenic talk-therapy group is an intervention program developed for people with different mental health problems and consists of 16 talk-therapy meetings, which last for 2 h and 15 min each, as well as homework for a period of 16 weeks (for detailed description see Langeland & Vinje, 2013). Leading these groups in a salutogenic way implies special competence. Key is that the health professionals integrate the theoretical knowledge into a therapeutic use of self 'the salutogenic way'. Accordingly, the focus for the group leader is to help the participant entering into a good circle or positive feedback loop between using one's resistance resources and developing one's SOC. Our experience is that these types of groups need a professional leader, a mental health professional that knows how to build both on their own, and their clients' salutogenic capacity. Further, a salutogenic talk-therapy leader must be highly empathetic and sensitive to the process of relating to people as whole persons. In talk-therapy groups, a central ideal is that conversations between participants and between participants and the group leader should be characterized by being a therapeutic *dialogue* (Egan, 2002). The aim is to develop a group atmosphere characterized by mutual, egalitarian relationships, in which the tenor of conversations between the group leaders and participants is similar to those between the participants themselves (Antonovsky, 1990; Gilligan & Price, 1993; Rogers, 1980).

Traditionally, mental health professionals learn to maintain their distance and stay in control. This is important, though research demonstrates that intimacy, spontaneity, and personal engagement may have therapeutic effects (Borg, 2007; Langeland & Wahl, 2009). Antonovsky (1987, p. 9) maintains: "When one searches for effective adaptation of the organism, one can move beyond post-Cartesian dualism and look to imagination, love, play, meaning, will, and the social structure that foster them." In teaching future group leaders, we also find inspiration in Yalom (1975) who identifies eleven interdependent therapeutic group aims: to give hope, to encourage universalization, to share information, to engender altruism, to try new approaches, to develop social competence, to promote vicarious learning, to promote learning between people, to encourage group solidarity, to achieve catharsis and to encourage existential viewpoints. Thus, the group leader's job is to focus on creating a conversational and interactional climate that will promote a desirable development in the participants. By acknowledging his or her inability to understand the participant fully, he or she strives toward meeting the participant with an attitude combining unconditional positive regard, empathic concern, and authenticity (Langeland & Vinje, 2013; Rogers, 1957). The idea is to demonstrate person-centeredness in practice, actively listening to the participants' story, respecting and acknowledging that the participant is his own expert (Langeland et al., 2007). The participant is the one fully knowing his or her unique situation, including experiences of pain, suffering, and concerns (Rogers, 1957). From a salutogenic perspective, the group leader has a role as a dialogue partner, achieving a balance between listening empathetically to participants' difficulties while taking into account their strengths and resources (Duncan, Miller, Hubble, & Wampold, 2010). It is a confidence in people's innate potential for growth and development that should be in the forefront of the group leader's mind. We emphasize in our teachings that the group has a potential for facilitating self-understanding and self-definition, and thus the group leader holds a considerable responsibility to build the type of relationship that can inspire hope. According to Stanhope and Solomon (2008) this helps bolster against the negative impact of societal stigma and marginalization, an important goal for health promotion.

This specific education program consists of four parts: (1) the salutogenic model of health (2) knowledge translation of the model into mental healthcare settings, (3) practical strategies and (4) development of clinical competence. Our students have evaluated the program as meaningful and very useful in understanding how a salutogenic health focus may be practiced. Facilitating health-promoting process and supporting others (one-on-one, and in groups) during such

processes is central in our teachings. We do this by use of the different theoretical and salutogenic perspectives we have presented above, and will discuss further below. We rely heavily on what we describe as dialogue-based lectures. These are inductive methods inviting the students to explore his or her own experiences with a certain phenomenon or topic, and the teacher lets what the students find be the starting point of joint reflections on the topic and for her subsequent lecture. The focus is on interaction processes and on becoming a salutogenic group leader. The aim is that the students develop professional and ethical understanding, and that they are able to choose ethical sound methods in specific situations. Central to our teachings is thus experience-oriented learning, and we arrange for 'realistic sessions' in which the students can practice together both as a group leader and as a participant of a talk-therapy group. The teaching methods are lectures, dialogues, individual studies, and practical exercises in groups.

Our research shows that the group leader's salutogenic approach helps increase participants' awareness of and confidence in their potential, their internal and external resources and their ability to use these to increase their SOC, coping, level of mental health and well-being. The intervention has been evaluated in a randomized controlled trial study, showing positive effects on the sense of coherence, and it has been positively evaluated in its utility for everyday living (Langeland et al., 2006). Other studies confirm that salutogenic talk-therapy groups strengthen the sense of coherence, mental health and well-being; this salutogenic approach increases participants' awareness of and confidence in their potential, their internal and external resources and their ability to use them, and thus increase their coping and sense of coherence (Langeland & Vinje, 2013).

Example 3: Students Practicing Participatory Methods in the Salutogenic Way

Empowering and enabling individuals and groups are fundamental principles in health promotion, and health promotion practitioners need to master different kinds of participatory and partnership methods (Green et al., 2015). However, how do we know that what we do as health promotion practitioners actually work? Traditionally, students in health promotion are trained to use action-learning methodology in order to increase their ability to practice reflection in action (Reason, 1988; Schön, 1983). Applying a salutogenic orientation to one's health promotion work should most certainly involve developing skills of reflection about own practice. Yet, the weakness of the traditional training as we see it is that it does not problematize the process that underlies

practitioners' reflection in and of practice. Reflection is a cognitive process, which may lose some of its development and improvement power if one does not take into account the pre-reflexive, pre-cognitive mode of sensibility (Vinje, 2007). Participatory methods are often designed to invite people to share their experiences in order to improve a setting or a situation, and the methods aim at making people feeling secure and empowered in doing so. However, we argue that participatory methods have the power to cause harm if not facilitated with the skills of both sensibility and reflection (Ausland & Vinje, 2010). We find that practicing self-tuning individually and together in groups (for example in a workplace setting) is helpful in bringing about changes at a group level, and in doing so, the group's salutogenic capacity may be strengthened. In this third example, we present one example of how students can train and practice introspection, sensibility, and critical reflection in action.

This example is a student-led assignment in which the students plan, arrange, and evaluate their own dialogue conference for co-students. The problem they are set to investigate by the use of participatory methods is: "How can a master's program in health promotion promote health for its students?"

At the end of the conference, the aim is that the students have gained experience in planning and performing a conference using participatory methods, and that they have made plans for action to improve own situation as master's students. Central to both method and result is salutogenesis. The core of the salutogenic understanding is underpinning every action: (1) health as a continuum, (2) the normalcy of stressors and tension in everybody's lives, (3) the need to understand the person in his/her context, (4) the activation and use of resources to counter tension; and (5) the goal of adaptive coping and enhancement of health and well-being. When these ideas become guiding principles, it becomes clear that every action entails an invitation to every participant to bring forth her own experience. The facilitator's ability to ask for, listen to, and really notice what is at stake is vital to the success and relevance of the reflection. The stages in the conference are (1) Planning and organizing (2) Searching for research questions (3) Planning and performing facilitating participatory methods (4) Continuous evaluation by reflecting on action and reflecting in action (5) Documenting the process and disseminating the results.

During the conference, the students change roles as facilitators and participants, and they all reflect individually on what they experience by writing reflection notes during the process (see Table 29.3). Traditionally, one often moves directly to reflecting in pairs or in groups. Taking the salutogenic principle of understanding the person in her

Table 29.3 Content of an educational strategy applying salutogenesis in the training of health professionals

Application of salutogenesis in training health professionals		
Discovering, focusing, vocalizing, understanding, being, changing, and theorizing		
What to do?	How to do it?	How to be salutogenic?
Theories and values in Health promotion, the Salutogenic Model of Health and other relevant theories	All core competencies apply, but students also need to know how to engage others, work with others, facilitate democracy and participation adapted to different settings and participants, thus relational skills are also needed	Striving towards an attitude of mindful presence, non-judgmental acceptance, emphatic concern, authenticity, and wonder
Students read texts, discuss among themselves and with teachers and other lecturers, and they write academic assignments	Students explore, assess, reflect on own experience and practice, develop self-awareness, relational sensitivity, ability to reflect, and skills in carrying out dialogues	Students engage in a variety of activities to heightened own sensibility understood as self-awareness and self-sensitivity and ability to notice and grasp what's at play in a giving situation, to understand its meaning and act accordingly to help mobilize resources and promote ease and well-being
Teachers give lectures, design written assignments, and engage in theoretical discussions with students and colleagues to inspire analytical and rational development	Teachers design exercises which is solved from an **I**ndividual, **G**roup, and **P**lenary (IGP) perspective, teachers arrange reflective circles, (students sitting in a circle) facilitating students' ability to descriptive, analytical, and constructive reflecting about own experience, practice, and activities of the given day	Teachers give students essayistic writing assignments designed to explore own experiences, feelings, and perceptions. Teachers design lessons to practice active listening, wondering, non-judgmental attitude, and acceptance. They include activities such as small meditations, easy yoga, breathing exercises all with an aim to increase self-and relational awareness and sensitivity. All lessons include activating individual pre-understanding and individual, group, and plenary post-reflection. Teachers do this while demonstrating (being) the salutogenic qualities the tasks are designed to enhance

context seriously, we suggest using the idea of sensibility and allow individual introspection and self-reflection about the subject *prior* to group reflection. Further, we arrange for the students to take time-outs to share their reflection notes in groups during the process, (every group consists of both facilitators and participants). At the end of a session, the group develops a new reflection note together, reflecting upon the groups' learning processes, based on their individual inputs into the reflections. Eventually, all reflection notes, both group notes and individual ones, are posted on the students Virtual Electronic Classroom, for everyone to read and learn from. All stages in the dialogue process are described, reflected upon with an aim of improving the process both at an individual and at group level. This way, the students practice self-tuning and may experience ways of promoting one's own and the group's salutogenic capacity. We find that a crucial advantage is that all stages of the students' learning processes are transparent.

Teaching by Doing and Teaching by Being

In the three examples above, we have introduced several theoretical concepts that are central to our teaching strategies. Many of these concepts are empirically derived from years of research. In the sections below, we more fully present and discuss these ideas and their relevance in the application of salutogenesis in the training of health professionals.

Health promotion skills of the individual must be understood as part of the setting the health professional is working in. Applying new knowledge is not just an individual exercise, but happens in a larger political and ideological context. All methodologies used in health promotion work can be encapsulated and have limited effect if one does not have a perspective on learning as something ongoing and expanding broader than own practice. Taking the philosophical formula suggested by Lindström and Eriksson (2010) into account, real health promotion is exercised through participant-oriented methodology, for example in the form of dialogue or discussion groups of various kinds. Health promotion methods have therefore an innate moral goal to facilitate democracy and participation adapted to different settings and participants (ibid).

The overall aim of health promotion is to strengthen health and quality of life of those involved. However, methods used to promote involvement, participation, and quality of life can be perceived as a stressor by those involved, and like every other stressor, its effect can be health promoting, health neutral, or health detrimental. No practical method of health promotion is good or bad in itself. It is thus important for the health professional to understand how a particular method changes from idea to practical reality when filtered through him or her as health promoter.

Our educational strategy following from this line of reasoning involves a lot of reflecting on own practice. It includes consciously bringing the health professionals' experiences into the classroom to scrutinize them in light of their new knowledge. It also requires us to design practical lessons so that our students can practice together to build their self-awareness, relational sensitivity and ability to reflect. Moreover, we aim at helping the health professionals further develop their skills in carrying out dialogues. Together, we explore what it means to live a salutogenic life, and how to become a salutogenic dialogue partner. We introduce the art of wondering (Schibbye, 2007) and the power of acceptance, emphatic concern and authenticity (Langeland & Vinje, 2013; Rogers, 1957). We find it is necessary to focus not only on *what to do* and *how to do it*. Our experience is that it is vital to focus also on *how to be salutogenic*. Therefore, it all comes down to teaching by doing and teaching by being, the latter being by far the more challenging.

Our education strategy, then, comprises the three perspectives: what to do, how to do it, and how to be it. (See Table 29.3)

Different Logics, Knowing Them and the Skill of Toggling Between Them

Table 29.3 presents a linear outline of the content of our educational strategy. However, knowing that Antonovsky was inspired by systems theory while developing salutogenesis (Antonovsky, 1979), and taking the settings approach seriously, we would like to point out that such a Table, while compatible with rational analytical thinking, does not give the whole picture of what salutogenic competence is about.

A more accurate display of the strategy, however much more complex, would be a dialogical relational model showing how every part of the strategy is linked together with arrows pointing in every direction, connecting every part, showing how every part is affecting each other reciprocally in feedback-loops. Acquiring salutogenic skills involves focusing on theories and values and on the "doing" part and "being" part simultaneously. In real life, there is nothing linear about it. The goal is that the health professional understands these reciprocal feedback-loops and that assessment of a practical situation and resultant acting becomes increasingly reflexive. In our experience, gaining this level of competence requires lot of reflection and acceptance of the aforementioned stance: learning salutogenesis is a lifelong learning process. It develops skill that enables the health professional to move between

different logics such as the rational analytic one vs. the relational dialogical one, and the doing vs. being aspects of salutogenic work.

Self-Tuning for Building Salutogenic Capacity

Research shows that self-tuning is an important competence for health promotion (Bakibinga, Vinje, & Mittelmark, 2012; Vinje, 2007; Vinje & Ausland, 2013; Vinje & Mittelmark, 2006). The concept of self-tuning has evolved from exploring in-depth, using inductive qualitative designs, the nature of job engagement among thriving Norwegian community health nurses, and investigating how job engagement is maintained and promoted (Vinje, 2007; Vinje & Mittelmark, 2006). The concept has been further explored among Ugandan nurses (Bakibinga et al., 2012), and in the work-life of nurses and other health professionals in municipal health services in Norway (Vinje & Ausland, 2013). The experience of meaning, particularly in the sense of being useful and experiencing existential significance, seems essential for health professionals' engagement and work-related well-being (ibid). When the inner drive of the healthcare worker resonates with his or her profession and finds its expression in his or her current work, it creates an inspirational force, which sustains and enhances the experience of meaning, zest, and vitality (see Fig. 29.1 for the original self-tuning model).

In our teaching, we link this understanding with the salutogenic concept of boundaries—Antonovsky clarifies that while the sense of coherence refers to a generalized, long lasting way of seeing the world and one's life in it, one does not need to see one's entire world as coherent, we all set boundaries (Antonovsky, 1987, pp. 22–23):

The boundary notion suggests that one need not necessarily feel that all of life is highly comprehensible, manageable and meaningful in order to have a strong SOC. (…) I do not think it is possible to so narrow the boundaries as to put beyond the pale of significance four spheres—one's inner feelings, one's immediate interpersonal relations, one's major activities, and existential issues (death, inevitable failures, shortcomings, conflict, and isolation)—and yet maintain a strong SOC.

In his discussions on boundaries, Antonovsky also points out that different persons have different breadths to one's boundaries, and that a person with a strong sense of coherence might maintain his or her view of the world as coherent by being flexible about the areas included within the boundaries considered significant (ibid). He thereby gives a nod in the direction of existential curiosity in order to tune and increase one's ability to know and find one's significant areas of life, and being flexible about them. We have added this insight into the part of the self-tuning model that illustrates the inspirational force, this time of life engagement (see Fig. 29.2.)

As illustrated in the original self-tuning model, the match between inner drive/calling and vocation seems to act as a catalyst for processes leading simultaneously to high job engagement and to highly diligent dutifulness, which in turn may inhibit engagement (Vinje, 2008; Vinje & Mittelmark, 2007). In line with a salutogenic perspective, we can thus argue that every person, at all times, will be in a position for health-promoting and detrimental factors to influence his or her situation simultaneously, in line with the ontological stance of heterostasis in salutogenesis (Antonovsky, 1979).

The challenge, which is of relevance to our topic, is to explore the dynamics, and to devote attention to understanding positive and negative factors alike (Vinje & Ausland, 2013). Although Antonovsky is somewhat unclear even if extensive

Fig. 29.1 The self-tuning model of self-care (Vinje & Mittelmark, 2006)
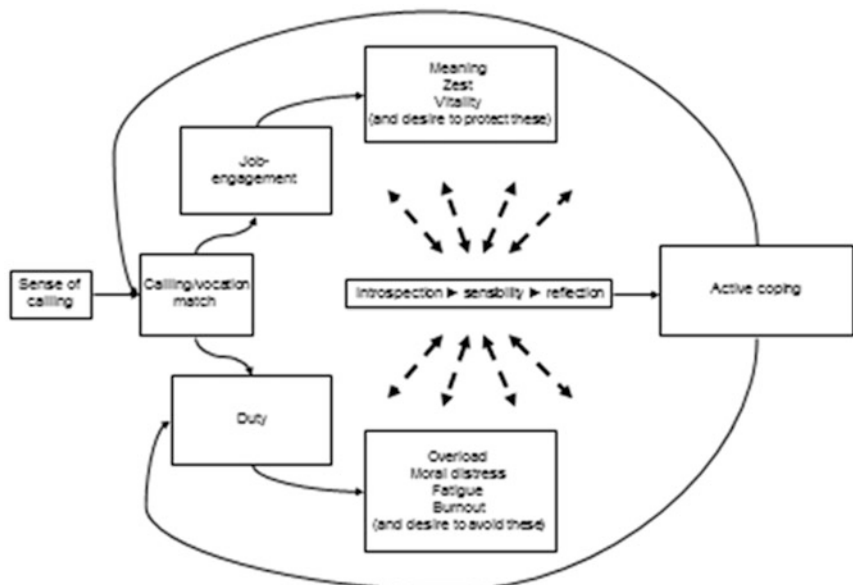
Fig. 29.2 The inspirational force of life engagement, searching for meaning through exploration of significant life areas
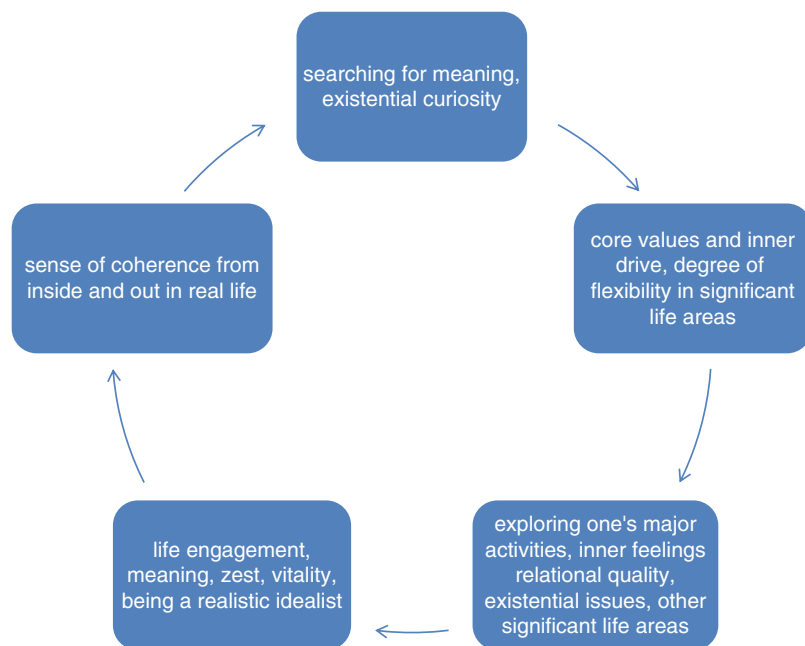
Fig. 29.3 The actual "tuning" practice in self-tuning: sensing, reflecting, and reacting with the aim of adaptive coping and movement towards ease on the salutogenic health-continuum
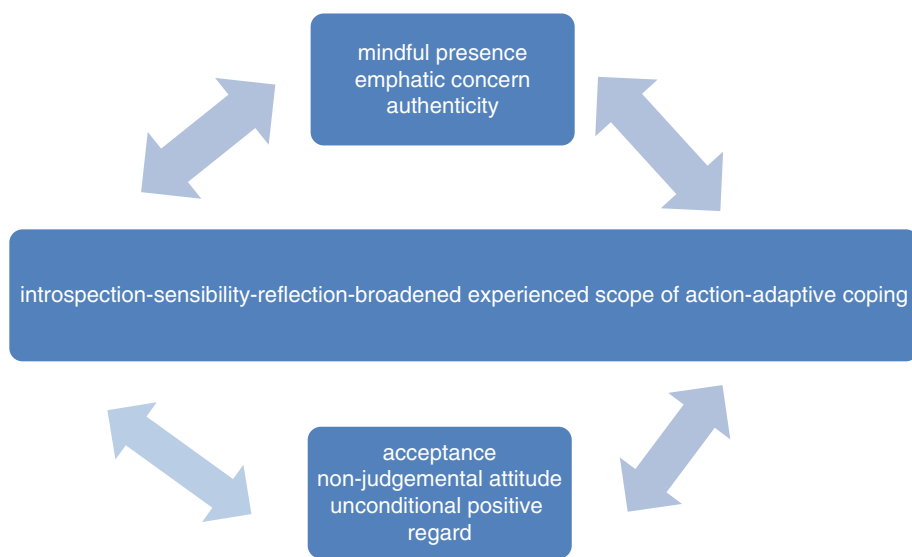
in his ponderings about the meaning of health, he seemed to believe that salutogenesis is about focusing on movement toward the ease pole of the health ease - dis/ease continuum—regardless of how far into the positive that continuum might stretch. We believe, however, giving attention to that which *is* in a given moment including detrimental sensations and factors is important to be able to halt and turn a negative development. In pausing and asking salutogenic questions like: "what now?", "what do I/we need," "what will bring health and ease in this situation," "who do I/we need to talk to?", "what do I/we usually do that works?", "what else is important?" "what makes my heart sing?" "how do I/we feel

when it feels right?" "who and what can help?" movement towards ease can yet again begin and be the object of our concern. We find that the mediating process in the self-tuning model, the actual "tuning" practice is helpful in this process. For the purpose of our teachings, it is depicted like this:

In our teaching, we introduce and seek to explore self-tuning as a health-promoting capability. The Self-tuning Model has proven useful to outline topics in teaching about salutogenesis, and students in our programmes react well to its use. However, they are made to understand that self-tuning is each individual's and group's practice, and that it does not hold detailed answers to specific situations. Self-

tuning is the process of exploring, sensing, reflecting, and thus reacting to a situation with increasingly more adaptive coping. The self-tuning process can be learned; however, it requires conscious work over time. Our students express that the model is meaningful, and we find that self-tuning provides an essential basis for discussions on and reflections around health-promoting processes and the enhancement of salutogenic capabilities.

Therefore, we propose that self-tuning is a tool for sensing what is at play in a certain situation, for reflecting upon it, and for reacting to it in a health-promoting manner. Our teaching experiences show that in combining the actual "tuning" (Fig. 29.3) with the "exploration of significant life areas" (Fig. 29.2), the self-tuning model helps structure and facilitate health-promoting processes when working both one-on-one and in groups. We propose that it relates to enhancing a sense of coherence and health and well-being as illustrated here:

$$Selftuning \rightarrow GRRs \rightarrow\ \uparrow SOC$$
$$\rightarrow \uparrow \text{Use of GRRs and SRRs}$$
$$\rightarrow \uparrow \text{Health and Well-being}$$

This is, once again, *not* a linear process, but a systemic relational one, meaning that the arrows in fact are doubled-arrowed, connecting every aspect of the process to one another.

Teaching Reflection

We will now dive deeper into teaching reflection and sensibility. It is important for the health professional to learn to reflect upon not only what he/she is doing, but why, and how, and the effects on others when he or she is the one doing it. Moreover, it is vital to understand how the persons and the particular setting perceive the method used by the health professional, and how the method relates to the purpose of the initiative. As we see it, and aim to teach it, the health professional needs to learn how to include reflection into each initiative. How are the effects of the health promotion activities assessed in the setting? Who assesses the effects, and how can these assessments help to improve and develop the methods used? The learning has its focus on what happens when one is learning and that learning is ongoing and never ending, and not so much on any particular results. Our teaching includes understanding the ontological stance that salutogenesis represents, and we move from theoretical understandings of salutogenesis as a body of knowledge, as a continuous learning process, as a way of working, and as a way of being, to reflecting on more or less successful implementation in light of our students' practical experiences. Through learning the skill of reflecting upon

one's practice, the initiative undertaken has the potential of becoming health promoting. In health promotion, through reflection, one aims at developing structures that facilitate systematic contemplation about practice and practical approaches. Reflection is, however, not always innocent and without pain, it can be both painful and energy draining to discover one's own or one's colleagues' capabilities or lack thereof (Ausland & Vinje, 2010). The ability to reflect critically with others can be health promoting because it helps identify resources and develop control and oversight of a situation. Being salutogenic entails in this respect to demonstrate an attitude of wondering and a will to explore and look at a situation from different perspectives, and to show a will to learn together, and facilitate continual learning processes. All this taken into account, in our teaching as in our research, we keep coming back to the question: how do we know that what we reflect upon is relevant for the actual situation?

Teaching Introspection and Sensibility

Although reflection is a vital part of the sensing/reacting process we call self-tuning (Vinje, 2007; Vinje & Mittelmark, 2006), reflection by itself is likely not enough to ensure life experiences being translated into better health and well-being. Engaging in health-promoting processes finds its basis not only in reflection, but in a talent and habit of introspection, sensibility, reflection and a readiness to act when needed, which converts into active, adaptive coping. The "tuning" process is characterized by a person's or group's ability to pause, to concentrate inwardly and to reflect on one's own situation. Through doing this, one monitors one's personal and environmental states and the degree to which one's situation is characterized by engagement and well-being.

In this way, one attempts to protect meaning, zest, and vitality in an ongoing process. Nortvedt and Grimen (2004) present the construct of sensibility as being a capacity desirable for people in the helping professions to develop, in order to sense and understand the experience of being a patient. Furthermore, Nortvedt and Grimen (2004) claim that sensibility, in its receptiveness towards the expressions of others, also encompasses a moral dimension that involves responding ethically to these expressions. Sensibility as it is used in self-tuning expands this understanding to including a pre-cognitive apprehension of one's own inner state and the receptiveness of one's own vulnerability (Vinje & Mittelmark, 2006). We suggest that sensibility may awaken an impulse, a wish, or a sense of ethical responsibility that calls for the taking care of one's own health (Vinje, 2007). We thus suggest that sensibility is a central feature for health

promotion, directed towards both patients/clients and professionals.

To heighten our students' sensibility, we use a variety of exercises, one of which is writing essays (Bech-Karlsen, 2003) based on concrete situations from a student's own life and/or practice. Our students are invited, using introspection, to describe their experiences related to a specific event, in as detailed and nuanced a manner as possible. The task is to practice grasping signals from own senses, emotions, thoughts, bodily reactions, and existential depths that come into play in the situation, and to practice describing these without judging them as good or less good reactions. What one finds only has status as that which *is* right now. What one chooses to *do* with that finding is, however, a matter for reflection. Our students thus practice noting, discovering and accepting without judgment that which gives content to individual reflection and to reflection in groups. The assumption is that through introspection one's sensibility will provide relevant and useful reflection processes, which in turn will provide a broadened, experienced scope of action and relevant active, adaptive coping.

Sensibility has its own language that students learn to access through these descriptive texts. Prior to the actual essay writing, we sometimes use warm-up exercises such as listening to music, doing easy yoga, meditations, breathing exercises, visualizations, going for walks, etc. We find that there cannot be a fixed plan as to which exercise to use. Each person and each group is different and unique, and every plan is only tentative. The teacher (and health promoter) needs to work on her own sensibility in order to design effective lessons in this respect.

Summing up

To sum this chapter up, we would like to emphasize that any educational strategy aiming to teach salutogenic practice should be grounded in the ontological stance that salutogenesis represents (see Table 29.1). Such education should be comprised of salutogenesis as a body of knowledge, as a continuous learning process, as a way of working, and as a way of being. It is important to remember that the overall objective is not the healing of diseases, but the facilitating and supporting of health-promoting processes leading to a person's or group's adaptive coping and enhanced ease and well-being. We find that helping students explore and reflect upon their experiences in light of the two different orientations, salutogenesis and pathogenesis, is best done as an ongoing process.

A key outcome of training students in salutogenesis is that the student develops the capacity to manage *herself* in the salutogenic way. To facilitate this development, we strongly suggest introducing and working on increasing the capability called "self-tuning," which is habitual self-sensitivity, reflection, and mobilizing of resources to maintain and improve one's own health ("ease," in Antonovsky's terms). This is a form of self-care, the principles of which can be used by health professionals to assist patients and others to experience good health and well-being. A health professional's "salutogenic capacity" is her degree of skill to help a person or group examine, mobilize, and deploy sufficient resources to achieve a shift towards the experience of good health and well-being. One's salutogenic capacity can be expanded as part of professional training and after training, such that salutogenic capacity is strengthened and reinforced during the course of one's career. There are surely many ways to achieve this. However, in our experience the equal emphasis on *what to do, how to do it, how to be it*, is a key factor in succeeding in training health professionals in salutogenesis. Therefore, it all comes down to teaching by doing and teaching by being, the latter by far the more challenging. However, comprising the three perspectives is, in our experience, the most effective way to teach salutogenesis.

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Monica Lillefjell, Ruca Maass, and Camilla Ihlebæk

Introduction

Vocational rehabilitation is a combination of medical, psychological, social, and occupational activities aiming to re-establish, among sick or injured people with previous work history, their work capacity and prerequisites for returning to work (Ahlgren, Bergroth, Ekholm, & Schüldt, 2007). This chapter aims at providing a salutogenic orientation to vocational rehabilitation, and we explore how a salutogenic perspective applied in practical rehabilitation can be beneficial in rehabilitation settingVocational rehabilitations including specialist health services, private rehabilitation institutions, Green Care- Agriculture welfare services, and workplace rehabilitation for employees on sick leave.

Antonovsky (1979) stated that his writings on salutogenesis were aimed at all those who are "committed to understanding and enhancing the adaptive capabilities of human beings," clearly inclusive of the field of rehabilitation. Individuals who are in a rehabilitation process face constant challenges, and the outcome of the rehabilitation, at biological, psychological, and social levels, depends on their capability to deal with, overcome, and recover from these challenges. According to Antonovsky's theory, this capability depends on the strength of the individual's sense of coherence, determined by an individual's general resistant resources.

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There is evidence that rehabilitation is facilitated by the adoption and practical application of a salutogenic approach (Griffiths, 2009). The WHO definition of rehabilitation states:

> Rehabilitation of people with disabilities is a process aimed at enabling them to reach and maintain their optimal physical, sensory, intellectual, psychological, and social functional levels. Rehabilitation provides disabled people with the tools they need to attain independence and self-determination (WHO, 2011).

In line with this definition, Antonovsky (1991) defined recovery as a constructive process in which the individual focuses on their own situation in a flexible, adaptive, and future-oriented way. He argued that for adults, the work environment is the most important setting in determining an individual's sense of coherence. Vocation can strengthen the sense of coherence when expectations are known and consistent, when a worker experiences having the resources required to complete job tasks, and when the worker believes that he/she has a shared responsibility (Lustig, Rosenthal, Strauser, & Haynes, 2000). Sense of coherence is a factor in work-related phenomena such as sick leave processes (Falkdal, Edlund, & Dahlgren, 2006), disability leading to pension (Suominen et al., 2005), work and well-being (Virtanen & Koivisto, 2001), work attitudes (Axelsson, Andersson, Håkansson, & Ejlertsson, 2005), work stressors and strain (Höge & Büssing, 2004; Kivimäki, Kalimo, & Toppinen, 1998), profession or kind of employment (Lundberg & Nyström Peck, 1994), and quality of work (Volanen, Lahelma, Silventoinen, & Suominen, 2004).

According to Ilmarinen (2006), return to work or work ability is built on the balance between a person's resources and work demands. Besides the work environment, individual factors that affect work ability include functional capacity, competence (knowledge and skills), and values and motivation. Non-work factors known to influence work ability include family, friends, and relatives and the broader social and policy environment (Ilmarinen, 2006).

Descriptive Research

Return to work after a period with disability leave has often been studied in terms of clinical factors, objective measures of trauma, pain, and musculoskeletal diseases (Shaw, Segal, Poljatako, & Harburn, 2002), or how social expectations and values influence attitudes towards employment (Jakobsen, 2004). Coordinated and tailored multidisciplinary rehabilitation programs that include psychosocial pain management and physical exercise intervention, are more effective in improving function and return to work than programs that do not include psychosocial interventions (Guzman et al., 2002; Hoffman, Papas, Chatkoff, & Kerns, 2007; Staal, Rainville, Fritz, van Mechelen, & Pransky, 2005).

Hoefsmit, Houkes, and Nijhuis (2012) identified characteristics of return to work (RTW) interventions that facilitated RTW in multiple populations and across interventions, and concluded that multidisciplinary interventions were effective. This conclusion is supported by Franche et al. (2005) for workplace-based RTW interventions aimed to reduce work disability duration and associated costs.

In the last decade, an increasing number of persons with mental, physical, and social problems have participated in Green Care services in the Nordic countries and other European countries (Batt-Rawden & Tellnes, 2009). Green Care is the use of farms as an arena for health promotion, rehabilitation, and social interventions to improve the coping abilities, participation, empowerment, and quality of life of rehabilitation clients (Batt-Rawden & Tellnes, 2009; Hassink, Elings, Zweekhorst, van den Nieuwenhuizen, & Smit, 2010).

Sense of coherence is a predictor of the outcome of vocational rehabilitation (Kaiser, Mattsson, Marklund, & Wimo, 2006). Several studies underline that rehabilitation services should ensure that they have rehabilitation goals that strengthen individuals' sense of coherence (Engström & Janson, 2009; Griffiths, 2009; Kaiser, Mattsson, Marklund, & Wimo, 2001; Kaiser et al., 2006; Lillefjell, 2008; Newton, 1999). Engström and Janson (2009) found that a high level of sense of coherence counteracts short as well as long-term sickness absence. As an example of dramatic recovery, liver transplant recipients with higher levels of hardiness and higher sense of coherence scores demonstrated higher RTW rates compared to those with lower scores (Newton, 1999). In accordance are findings of Ramel, Rosberg, Dahlin, and Cederlund (2003), who found that the RTW process after serious hand injury was more dependent on the person's own ability and motivation, including sense of coherence, than on the severity of the injury. Additionally, both personal resources (a strong sense of coherence) and the presence of a sufficient social network have been observed to buffer the negative influence of disabilities on life satisfaction (Anke & Fugl-Meyer, 2004).

Bildt, Backstig, and Andersson Hjelm (2006) examined the associations between physical and psychological stress factors in and outside work, sickness absence, and cardiovascular and musculoskeletal diseases. The impact on sickness absence consisted mainly of demand and control aspects of the psychosocial working conditions, but also on employment security, and level of the sense of coherence; low sense of coherence was found to exacerbate musculoskeletal complaints. In accordance are results from a 10-year follow-up study comparing psychosocial factors in healthy persons and sick-listed persons with musculoskeletal disorders (MSD); there was significantly higher quality of life, more control over the working situation, and a better sense of coherence in the healthy group compared to the MSD group (Lydell, Marklund, Baigi, Mattsson, & Määnsson, 2011).

Evaluation of workplace-based early rehabilitation in Finland showed that during the rehabilitation period, the performance of participants began to match that of an at-work comparison group, especially with respect to work capacity, mental well-being, and musculoskeletal problems (Väänänen-Tomppo, Janatuinen, & Törnqvist, 2005). Sense of coherence actually rose in both groups, attributed in part to positive changes in the workplace. In contrast, a study of employee and work-related predictors for entering rehabilitation observed that sense of coherence was not associated with return to work (Lamminpää, Kuoppala, Väänänen-Tomppo, & Hinkka, 2012).

Volanen et al. (2010) found the sense of coherence to be associated with intentions to retire early among women and men reporting somatic or mental illness; this association was not influenced by socioeconomic, psychosocial, and work and health behavior. Kaiser et al. (2006) found that 3 years after the vocational rehabilitation process had ended, men who received disability pension had significantly lower sense of coherence scores than those who did not receive disability pension, and women who received disability pension had stronger sense of coherence than men who received disability pension. The gender difference might be related to a societal belief in women's greater vulnerability to musculoskeletal disorder. The income disparity between men and women, with lower income for women, is probably also of importance. Thus, the findings of descriptive research indicate that the level of the sense of coherence is a factor in rehabilitation processes (Lillefjell, 2006).

Intervention Research

A vast amount of interventions exist that aim to facilitate RTW after sickness absence. These interventions are usually focused on specific target populations such as employees with low back pain, stress-related complaints, or adjustment disorders. The majority of RTW interventions for sickness absence beneficiaries involve some form of cognitive-behavioral treatment to improve cognitive skills in relation to work (Franche et al., 2005; Martin et al., 2013). Some interventions showing promising results also include contact with the workplace or aim at restoring contact with the workplace (Martin et al., 2013).

Salutogenic theory is found to help explain the process of recovery for those with mental health issues (Griffiths, 2009); there is substantial evidence that sense of coherence plays a central role in coping with stressors in the rehabilitation process, and that it contributes to mental health and psychosocial functioning. Moreover, sense of coherence is found to increase through work rehabilitation programs and re-employment (Lillefjell & Jakobsen, 2007; Vastamaki, Moser, & Paul, 2009). For example, a Finnish unemployed sample significantly improved the sense of coherence through intervention, and re-employed individuals experienced the greatest improvements (Vastamaki et al., 2009). This included changes in comprehensibility, manageability, and meaningfulness.

Hansen, Edlund, and Bränholm (2005) identified predictors of individual resources for a return to work among persons on sick leave. There were significant differences between the study group and the reference groups in sense of coherence, locus of control, life satisfaction, and coping resources. The most important predictive factors were previous sick leave, own belief about future, and self-reported symptoms. A study among unskilled Danish public employees and privately employed housecleaners on sick leave due to musculoskeletal and/or common mental illnesses found support for the salutogenic theory (Jensen Claudi, 2013); work ability expressed as the intention to work was decisive for RTW, reflecting the interpretation of the work/health situation as comprehensible, meaningful, and manageable.

A study by Lillefjell and Jakobsen (2007) investigated the association between the sense of coherence and work re-entry following vocational rehabilitation among patients with musculoskeletal pain. Sense of coherence significantly improved, and pain experience, anxiety, and depression significantly decreased during the rehabilitation period. Sense of coherence was found to significantly predict anxiety and depression in a non-RTW subsample. However no significant association was found between the sense of coherence and RTW. These data clarify the role of the sense of coherence in coping with chronic pain and emotional distress, but question the presumed role of the sense of coherence in work re-entry of persons with long-term chronic musculoskeletal pain. In contrast, the Pathway-to-Work Project (Juvonen-Posti, Kallanranta, Eksyma, Piirainen, & Keinänen-Kiukaanniemi, 2002) found participants' distress level to decrease remarkably during rehabilitation, and their perceived competence increased, but their sense of coherence did not change.

Rehabilitation services adopting a salutogenic approach and seeking to enhance a client's sense of coherence can be beneficial in terms of the client's rehabilitation and recovery (Lillefjell, 2008; Griffiths, 2009). Individuals who have been on sick leave and in the process of returning to work might profit from a systematic salutogenic orientation, where the daily actions of the counsellors focus on the resources available (Falkdal et al., 2006). According to Hansen, Edlund, and Henningsson (2006), a reliable prediction of a return to work was influenced by a combination of many factors: the individual's expectations, the number of days of sick leave taken in the past, somatic disorders, level of life satisfaction, and level of the sense of coherence.

In most European countries, there has been a shift within the health and social service sector from highly institutionalized towards more community-focused rehabilitation, such as the use of care farming, which was mentioned earlier (De Krom & Dessein, 2013). Care farms offer empowerment-oriented and strength-based practices within the community (Hassink et al., 2010). Different care farming interventions aim at starting a rehabilitation process by getting people to participate in an activity, and in this way contribute to improved coping, empowerment, meaningfulness, and quality of life, and if possible a return to work. Care farming interventions might therefore be regarded as pre-vocational rehabilitation where the focus is shifted from disease and disability toward participation and coping (Pedersen, Ihlebæk, & Kirkevold, 2012.)

Discussion

Vocational rehabilitation is a process of increasing awareness, enabling people to manage tension, to reflect about, identify, and mobilize internal as well as external resources, and to promote effective coping by finding solutions. Implementation of the salutogenic concept in vocational rehabilitation seems to be of value. The relevance of a salutogenic orientation in vocational rehabilitation is shown in several studies (Falkdal et al., 2006; Griffiths, 2009; Hansen et al., 2006); a strong sense of coherence predicts RTW and a weak sense of coherence predicts no RTW.

A salutogenic orientation might therefore have several implications when it comes to designing rehabilitation interventions. Enhancement of an individual's sense of coherence seem to be beneficial in terms of the individual's rehabilitation process and recovery (Merz, Bricout, & Koch, 2001). The main foundation of the concept of sense of coherence is to create coherence between structures and systems (Antonovsky, 1979; Eriksson, 2007), which is considered as a main challenge in the process of RTW. A salutogenic orientation may enhance professionals' ability to appreciate clients' coping strategies and resources. The professionals' competence seems to be essential. A salutogenic orientation includes practical skills, sensitivity, and intuition, and the ability to see the whole situation, contextualize it, and act accordingly, in order to facilitate return to work. RTW counsellors need training to help them focus on assessing and strengthening clients' sense of coherence, by focusing on past experiences that contribute to the sense of coherence. Rehabilitation services should have the goal to strengthen clients' sense of coherence (Lustig et al., 2000; Merz et al., 2001). On a note of caution, using a sense of coherence questionnaire as a screening instrument in RTW practice carries a risk of stigmatization. It is also relevant to question what the individual sense of coherence level at any given time really means for rehabilitation. A sense of coherence assessment might nevertheless be useful in the dialogue between the client and the professional, in order to identify resources (Eriksson, 2007).

Implications for Salutogenesis Research

Further investigation is required into the development of rehabilitation programs with salutogenic orientation as a part of their foundation. Additionally, more knowledge on how the salutogenic framework can facilitate the return to work process is needed. A salutogenic orientation in outpatient early rehabilitation, where the rehabilitation program and the development of working circumstances progress side-by-side seem to give promising results, and should be further investigated in longitudinal studies. To improve return to work rates, this might indicate a need for a greater part of the rehabilitation process to take place at the workplace/context to which the person is supposed to return after the rehabilitation period. More insight is needed into how disability interacts with comprehensibility, meaningfulness, and manageability (Antonovsky, 1979, 1987), and how this may be applied in rehabilitation counselling settings.

Challenges for the Future

To assist individuals to achieve their vocational goals, the rehabilitation models place emphasis on assessing and changing the environment as well as changing the individual. A multidimensional approach taking into account a person's physical condition and workplace-related challenges, as well as psychosocial factors, might be of great importance for the person as well as for the society. The key factor is to identify as well as to be able to use and re-use the general resistance resources available, for the intended purpose. Thus, in order to improve vocational rehabilitation in general, a salutogenic approach in all societal levels in policies is required. Coherence is a key, illustrating the main challenges in the rehabilitation research and practice, to create coherence between structures and systems.

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Applications of Salutogenesis to Aged and Highly-Aged Persons: Residential Care and Community Settings

31

Viktoria Quehenberger and Karl Krajic

Introduction

This chapter provides a brief overview of research on salutogenesis in long-term care settings, including descriptive research that is needed as a basis for interventions and intervention research. The focus is on users of residential aged care, and as a comparison with the users of care in the community setting, i.e., aged and highly-aged people. By "*residential aged care*" we understand institutions that provide comprehensive social and healthcare services to older people for whom adequate care cannot be provided in people's homes. By "*community-dwelling,*" we mean aged and highly-aged people who live in their own or other's private homes, and who have a need for a varying degree of home-based social and healthcare services. These classifications are a simplification of a complex array of arrangements aiming to provide care to older adults who need some level of assistance in their daily living. We also use the terms "*aged*" and "*highly-aged*" referring to people between 65 and 84 years, and 85 years and older, respectively. These labels are used for convenience as they correlate with epidemiology of chronic illness and functional impairment, but of course there is a large amount of interindividual variation in functional age.

To increase readability, we refer henceforth residents of residential aged care institutions as "*residents*" and to community-dwelling aged and highly-aged people as "*community dwellers*."

Our main focus on residents is in accordance with the focus of this Part of the Handbook on "curative settings"; the private home may also be temporarily or permanently a curative setting, as many older persons receive health and social services delivered in the home. Obviously, the theme "*applications*" is limiting and many important aspects of gerontology cannot be addressed here, but Part II of this Handbook has additional material about salutogenesis and older persons.

The chapter starts out with a brief introduction to the characteristics of residential aged care settings and their residents, and then briefly addresses main concepts of the salutogenic model. Subsequently, the relevance of a salutogenic approach in residential aged care institutionsResidential aged care is discussed. This is followed by a short description of the current state of descriptive research, followed by an analysis of intervention research using salutogenesis on residents. We also include some comparisons to research on community dwellers. We close with a discussion of some methodological and theoretical implications and challenges for future research on salutogenesis relevant to the aged and highly-aged.

Residential Aged Care

Aged care is the largest section of long-term care, a sector located at the interface of social and healthcare. The core function is to support everyday living of people to some degree functionally impaired, dependent and vulnerable, which in principle can apply to people of all ages. We focus on the aged as the largest group. Settings of residential care range from often rather bureaucratic and large organizations like traditional nursing homes to very small, rather informal care settings, which systematically include elements of self-care, contributions from family members and other informal carers, and co-operate with external professionals (medical and professional nursing support, housekeeping, social support, etc.). Aged care organizations combine different services, adjusted to the individual needs

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of residents. The key outcome often is defined as good or enhanced quality of life, encompassing a wide range of expert and lay perceptions about physical, mental and social aspects of the quality of life.

Due to various segregation processes, residents usually form a vulnerable and fragile group; they have a high prevalence of chronic diseases and chronic physical and/or cognitive functional impairments (Horn, Brause, & Schäffer, 2012). Residential aged care admission is often caused by multi-morbidity and dementia-related symptoms, accompanied by extensive impairments in basic activities of daily living (Drageset et al., 2009).

Though prevalence of diseases and average health status of residents might vary between countries, regions and types of care, there is a general trend that residents report worse health outcomes than community-dwelling counterparts. A study among US nursing homes found the prevalence of dementia among newly admitted residents to be 48.2 % (Magaziner et al., 2000); a Norwegian study found that about 80 % of residents showed some dementia-type symptoms (Nygaard, Naik, & Ruths, 2000). In addition, comparing residents and community dwellers without cognitive impairment, residents have significantly worse scores on functional ability, depression, satisfaction with life, and loneliness (Rodriguez-Blazquez et al., 2012). Regarding health-related quality of life, cognitively non-impaired residents have significantly worse scores on all dimensions compared to the community dwelling, except for social functioning, with the largest difference regarding physical functioning (Drageset, Natvig, et al., 2008).

Salutogenesis

Antonovsky proposed the salutogenic model in sharp opposition to the pathogenic orientation, which is prominent in western medical thinking. Starting from a perspective that the human system is inherently flawed and subject to entropic processes, Antonovsky rejected a dichotomous categorization of the health status (e.g., well vs. diseased, healthy vs. ill) as inappropriate to represent the complexity of health status. In contrast, the concept of the "*health ease/disease continuum*" (HE-DE) assumes that health is more reasonably understood as a continuum; every person—at a given point in time—is somewhere between the health and the disease poles on this continuum. Central guiding questions in Antonovsky's theory are "what it is that keeps people healthy?" and "what explains movement towards the health pole of the HE-DE continuum?". According to Antonovsky this movement cannot be accounted for by simply being low on risk factors; complimentary, "salutary" factors actively promote health (Antonovsky, 1996).

In this context, Antonovsky introduced the construct of "*generalized resistance resources*," which are defined as "a property of a person, a collective or a situation which, as evidence or logic has indicated, facilitate[d] successful coping with the inherent stressors of human existence"(Antonovsky, 1996, p. 15). Another core construct of the salutogenic theory which is a facilitator for movement towards health is the "*sense of coherence*," which is "a generalized orientation toward the world which perceives it, on a continuum, as comprehensible, manageable, and meaningful" (Antonovsky, 1996, p. 15). The sense of coherence is comprised of cognitive, behavioral, and motivational components. When confronted by a stressor, people with a strong sense of coherence are likely to be motivated to cope (meaningfulness), to believe that they understand the challenge (comprehensibility), and to believe that coping resources are accessible (manageability) (Antonovsky, 1996).

There are various hypotheses regarding the relations between the HE-DE continuum (health status), the sense of coherence, and generalized resistance resources (resources for health). In general, the strength of the sense of coherence is thought to determine whether the outcome of stressful life events will be noxious, neutral or salutary (Antonovsky, 1987). Sometimes the relations are mapped as the "salutogenic triangle": the repeated experience of successful coping by engaging one's resources is thought to strengthen one's sense of coherence, and that is thought to influence one's health (position on the HE-DE continuum) (Wiesmann & Hannich, 2010).

Salutogenesis and Its Relevance in Residential Care Settings

Health of older adults could be enhanced by better integrating the salutogenic approach into care and health promotion practice in long-term care and related research. A salutogenic orientation on health in later life helps to counteract stereotyping "the elderly" as diseased and to reconceptualise questions about health in later life towards why and how aged and highly-aged persons stay healthy respectively successfully cope well with chronic illness and disability (Sidell, 2009). From a gerontology point of view, the sense of coherence can be considered as a positive resource in the process of age-dependent changes (Wiesmann & Hannich, 2008). The literature describes the salutogenic model as widely congruent with existing gerontology theories like the "model of selective optimization with compensation" or "activity/disengagement theory." Further, consideration of the sense of coherence construct might contribute to a better understanding of

healthy ageing processes (Wiesmann, Rölker, & Hannich, 2004). For example, it is of empirical interest how a strengthened sense of coherence might ease the transition of becoming a resident (Tan, Vehvilainen-Julkunen, & Chan, 2014).

Salutogenesis is particularly relevant to understand the stress that many older people encounter due to an unpredictable future based on diminishing socioeconomic resources, shrinking social networks and deteriorating health and capacities (Tan et al., 2014). In this context, residents can be considered as an especially vulnerable group; therefore, concepts like the HE-DE continuum and the sense of coherence seem to be especially salient as a framework for research in residential aged care (Cole, 2007).

In a broader context, there are some attempts to integrate the salutogenic paradigm into nursing theory, conceptualizing nursing care as a generalized resistance resource for patients (Brieskorn-Zinke, 2000; Menzies, 2000; Sullivan, 1989). There are also recommendations that nursing practice in residential aged care should be guided by the use of a salutogenic approach (Drageset, Nygaard, et al., 2008). There are propositions to use the sense of coherence scale as a screening instrument to identify people at risk (e.g., risk groups for rapid functional status decline) (Cole, 2007). Sense of coherence assessment is proposed to form a meaningful indicator of quality of life in residents. In line with this, a salutogenic perspective could support refocusing aged care towards meaningful, manageable, and client-defined outcomes (Cole, 2007). To provide professional care in a sufficient and consistent way enhances comprehensibility. If staff is sensitive to the effect of care routines on residents' sense of control over their life, works to strengthen residents' resources (e.g., social support) and supports residents in using their resources, this enhances feelings of manageability. Support in the maintenance of close relationships, emotional support and provision of opportunities for purposeful activities (e.g., occupational therapy, activities residents valued in their life before movement to the facility) might foster residents' sense of meaningfulness (Drageset, Nygaard, et al., 2008). Salutogenic "standards" could be integrated in the design of healthcare settings including nursing homes (Dalton & Mccartney, 2011).

Finally yet importantly, research on residents and community dwellers could provide further insight on a basic assumption of salutogenic theory—that the sense of coherence is stable during the adult lifespan. So far, empirical findings on stability of the sense of coherence are inconsistent (Drageset, Espehaug, Hallberg, & Natvig, 2014).

Current State of Research

So far, research on salutogenesis focusing on residents is very scarce. Most of it was conducted in Scandinavian countries with some additional contributions from the USA. A major limitation of current studies is that research has mainly been restricted to residents with no to little cognitive impairment, although cognitively impaired individuals are the majority in residential aged care.

Regarding community dwellers, the research base is considerably broader and we could find attempts to test complex assumptions of the salutogenic model. Such research has mostly been conducted in the Scandinavian countries and Germany, but there are also contributions from the UK, Italy, Belgium, Canada, Portugal, Australia, and other countries. Yet, the researched population mainly comprises comparatively younger persons (65–84 years), who are often quite healthy and active. Research on the highly-aged (85+ years) is still very scarce. An exception is the Umea 85+ study from Sweden (e.g., Lövheim, Graneheim, Jonsen, Strandberg, & Lundman, 2013; Lundman et al., 2010; Nygren et al., 2005).

In studies on community dwellers, we did not find consistent information on how much and what type of social and health services they need and/or use. So it is difficult to identify applications of salutogenesis for those community dwellers who need assistance, and compare them to the residents who more obviously all need some assistance. But similar to research on residents, research on community dwellers tends to exclude the rather large segment of cognitively impaired individuals.

Descriptive Research

Table 31.1 provides an overview of *outcome measures addressed by salutogenic research with residents and community dwellers*. Researchers most often applied the salutogenic model to investigate subjective (overall) health outcomes like health-related quality of life, self-rated health as well as subjective physical and psychological/mental health. However, these concepts are often used interchangeably; though using the same instrument, the label of the outcome can differ according to the research tradition and context.

Although less frequently studied than subjective health, some outcomes that are especially relevant in the group of highly-aged, have been examined like mortality, morbidity, symptom reporting, depression, adjustment to aging in later life, self-care management, mobility disability and—of special interest in the context of this chapter—risk of nursing

Table 31.1 Outcome measures addressed by research on salutogenesis with residents and with community dwellers

	Residents	Community dwellers
Subjective overall health outcomes[a]		
Health-related quality of life	Drageset et al., 2009; Drageset, Nygaard, et al., 2008, etc.	Ekman, Fagerberg, & Lundman, 2002; Ekwall, Sivberg, & Hallberg, 2007, etc.
Self-rated health		Elovainio & Kivimaki, 2014; Forbes, 2001; Schneider et al., 2004; Söderhamn & Söderhamn, 2010 etc.
Subjective physical health		Nygren et al., 2005; Read et al., 2005; Wiesmann et al., 2006, 2009; Wiesmann & Hannich, 2014, etc.
Subjective mental/psychological health		Billings & Hashem, 2010; Nygren et al., 2005; Read et al., 2005; Wiesmann et al., 2006, 2009; Wiesmann & Hannich, 2014, etc.
Satisfaction with life		Dezutter, Wiesmann, Apers, & Luyckx, 2013; von Humboldt, Leal, & Pimenta, 2014, etc.
Quality of life		Borglin, Jakobsson, Edberg, & Hallberg, 2006; Helvik et al., 2014; Nesbitt & Heidrich, 2000, etc.
Subjective well-being		Elovainio & Kivimaki, 2014; Wiesmann et al., 2006; Wiesmann & Hannich, 2008, etc.
(Health) Outcomes especially relevant in aged and highly-aged		
Mortality		Lundman et al., 2010, etc.
Morbidity		Elovainio & Kivimaki, 2014, etc.
Diseases		
Depression	Drageset et al., 2012; Rajagopal et al., 2002, etc.	Dezutter et al., 2013; Lundman et al., 2010, etc.
Various other diseases (e.g., heart failure, COPD[b], osteoarthritis)		Lundman et al., 2010, etc.
Symptom reporting		Rennemark & Hagberg, 1999; Wiesmann et al., 2006, 2009, etc.
Functional status (Impairment in ADLs[c], mobility disability)	Cole, 2007, etc.	Avlund, Vass, & Hendriksen, 2003, etc.
Immune functioning (Natural killer cell activity; immune response to influenza vaccination)		Kohut et al., 2005; Lutgendorf et al., 1999, etc.
Adjustment to aging		von Humboldt, Leal, & Pimenta, 2013, etc.
Self-care management		Gallagher, Donoghue, Chenoweth, & Stein-Parbury, 2008; Söderhamn, Dale, & Söderhamn, 2011, etc.
Risk of nursing home admission		Thygesen et al., 2009, etc.
Concepts of the salutogenic model as outcomes		
HE-DE continuum		Wiesmann & Hannich, 2010, etc.
Stability of SOC	Drageset et al., 2014, etc.	Forbes, 2001; Larsson et al., 1995; Lövheim et al., 2013; Wiesmann et al., 2006, etc.
Changes in the sense of coherence in patients with Parkinson disease		Caap-Ahlgren & Dehlin, 2004, etc.

[a]Specific outcome terms often used interchangeably
[b]Chronic obstructive pulmonary disease
[c]Activities of daily living

home admission. Objective measures such as immune functioning are rarely in focus.

So far, research targeting more complex theoretical assumptions of the salutogenic model within community dwellers is very scarce and this is even more evident for research on residents (Table 31.2 for an overview).

Comparative studies (Table 31.2) are one way to identify whether sense of coherence plays a prominent role in a certain population (or context). Some studies have investigated if the association between sense of coherence and health outcomes varies between different populations (e.g., by comparing community-dwelling men and women); others have focused on investigating the specific role of the sense of coherence components regarding general resistance resources respectively health outcomes.

Of particular importance for applications of salutogenesis are questions on the potential mediating and moderating effects of the sense of coherence on health. In this context, studies reviewed have investigated research questions in various ways.

Mediation (see also Fig. 31.1b) refers to "how" a certain independent variable (for example a general resistance

Table 31.2 Exemplary overview of research in residents respectively, the community dwellers testing for complex assumptions of the salutogenic model

	Residents	Community dwellers
Role of sense of coherence in a certain population—comparisons		
... of the association between sense of coherence and health outcomes by means of ...		
... men/woman		Ciairano, Rabaglietti, De Martini, & Giletta, 2008; Saevareid, Thygesen, Nygaard, & Lindstrom, 2007, etc.
... home-dwelling/hospitalized elderly		Ekman et al., 2002; Söderhamn & Söderhamn, 2010, etc.
... aged with/without Parkinson disease		Gison et al., 2014, etc.
... of the association between sense of coherence components and ...		
... general resistance resources		Ciairano et al., 2008, etc.
... health outcomes		Söderhamn & Söderhamn, 2010, etc.
Testing assumptions on "when" and "how" sense of coherence might influence health status (in cross-sectional studies)—mediation and moderation		
Sense of coherence as a mediator between general resistance resources and specific health outcomes		
... HE-DE continuum		Wiesmann & Hannich, 2010, etc.
... symptom reporting, psychological and physical subjective health		Wiesmann et al., 2009, etc.
... subjective physical, mental and social health		Read et al., 2005, etc.
Well-being-paradox—sense of coherence as a mediator between		
... subjective psychological and physical health/quality of life and physical health limitations, etc.		Nesbitt & Heidrich, 2000; Wiesmann & Hannich, 2008, 2014, etc.
Mediators/mechanisms between sense of coherence and health outcomes		
... psychological resources as mediators between sense of coherence and depressive symptoms, satisfaction with life, mental health		Dezutter et al., 2013; Wiesmann & Hannich, 2014, etc.
Sense of coherence as a moderator between general resistance resources and specific health outcomes		
... health-related quality of life	Drageset et al., 2009; Drageset, Nygaard, et al., 2008, etc.	
... depression	Drageset et al., 2012, etc.	
Sense of coherence as a moderator between stressful life event and specific health outcomes		
... immune functioning (Natural killer cell activity)		Lutgendorf et al., 1999, etc.
Sense of coherence as a predictor for certain health outcomes and stability of the sense of coherence—longitudinal research		
Sense of coherence as a predictor for ...		
... subjective health		Wiesmann et al., 2006, etc.
... depression		Lundman et al., 2010, etc.
... change of functional health status	Cole, 2007, etc.	
... future needs of care		Larsson et al., 1995, etc.
... risk of nursing home admission		Thygesen et al., 2009, etc.
... mortality		Lundman et al., 2010, etc.
Stability of sense of coherence	Drageset et al., 2014, etc.	Caap-Ahlgren & Dehlin, 2004; Larsson et al., 1995; Lövheim et al., 2013; Wiesmann et al., 2006, etc.
Enhancement of the sense of coherence (and health) status—interventions by way of ...		
... physical activity		Kohut et al., 2005; Pakkala et al., 2012; Wiesmann et al., 2006, etc.
... spiritually based prayers	Rajagopal et al., 2002[a], etc.	
... personal-centered therapy		von Humboldt & Leal, 2013, etc.
... self-care telephone calls		Sundsli et al., 2014, etc.

[a]Residents of a continuing care community

Fig. 31.1 Basic designs of analysis to test assumptions of the salutogenic model in cross-sectional studies. *SOC* sense of coherence, *GRR* general resistance resource

a	SOC ⟶ Health status; GRR ⟶ Health status (SOC ↔ GRR)	Sense of coherence as an independent determinant of health status
b	SOC; GRR ⟶ SOC; SOC ⟶ Health status; GRR ⟶ Health status	Sense of coherence as a mediator regarding effects of general resistance resources on health status
c	SOC; SOC ⟶ (GRR ⟶ Health status); GRR ⟶ Health status	Sense of coherence as a moderator regarding effects of general resistance resources on health status

resource) might influence an outcome variable (for example subjective health). A mediating variable (such as the sense of coherence) is introduced as a possible mechanism to explain a statistical association between independent and outcome variable. In this model, the independent variable causally influences the intervening and both in turn the outcome variable (Hayes, 2013).

Moderation (see also Fig. 31.1c) means that an association between an independent and an outcome variable is influenced in its size, sign, or strength by a moderating variable (Hayes, 2013). Continuing with the example, moderation refers to how the relationship between the general resistance resource and subjective health might vary as a function of one's sense of coherence level, leading to questions like "does a lack of general resistance resources have less effect on subjective health when the sense of coherence is strong?".

So far, mediating effects of the sense of coherence have been mainly examined in middle-age adult samples (Wiesmann & Hannich, 2010), and for community-dwelling aged there are very few studies (Table 31.2). Regarding overall health measured on a HE-DE continuum, sense of coherence has some additional explanatory power after controlling for generalized resistance resources (ibid). Some effects were fully mediated by the sense of coherence (e.g., the effects of resources like autonomy, self-efficacy, self-esteem), other effects were partly mediated (e.g., the effects of resources like activity level, social support), and some effects were not mediated by sense of coherence (e.g., the effects of depressive mood). Furthermore, sense of coherence has been shown to

mediate the effects of physical exercise on mental health and on social health (Read, Aunola, Feldt, Leinonen, & Ruoppila, 2005). Other research has observed that the sense of coherence mediates the association between generalized resistance resources and psychological health and symptom reporting, but not physical health (Wiesmann, Niehorster, & Hannich, 2009).

Some studies have investigated mediation effects of sense of coherence in old age to gain a new perspective on the "well-being-paradox," which is known as the paradox that old persons report positive psychological functioning despite declines in physical health (Wiesmann & Hannich, 2014). The assumption is that aged persons with a strong sense of coherence are able to compensate negative effects of declining physical health on psychological health. If an aged person is able to interpret age-related changes in physical health as comprehensible, manageable and meaningful, or is able to compensate this loss by concentrating on and positively valuating other life domains, the person might be able to maintain a high level of well-being and psychological health (Wiesmann & Hannich, 2014). While some evidence supports the mediating effect of sense of coherence in community dwellers (Nesbitt & Heidrich, 2000; Wiesmann & Hannich, 2008, 2014), others fail to find an association between mental and physical health in highly-aged in the first place (Nygren et al., 2005). So findings are mixed regarding the mediating effect of sense of coherence on the relationship between subjective physical and mental health in old age. Yet, from the authors' point of view, moderation might also be a promising way to investigate this phenomenon.

Possible moderation effects of sense of coherence (Table 31.2) have mostly been examined in residential care settings and these studies have failed to observe such effects. So far, no moderating effect of sense of coherence has been observed regarding the relationship of social support to health-related quality of life (Drageset et al., 2009) or to depression (Drageset, Espehaug, & Kirkevold, 2012). Another study found no moderating effects of sense of coherence in the association of sociodemographic variables to health-related quality of life (Drageset, Nygaard, et al., 2008). Yet a study on elderly persons who anticipated relocation to congregate living facilities found that sense of coherence was a moderator for immune functioning in those anticipating a move. Sense of coherence was positively associated with immune functioning in the moving but not in the non-moving group (Lutgendorf, Vitaliano, Tripp-Reimer, Harvey, & Lubaroff, 1999); an indication that sense of coherence might only have a protective effect in situations with high stress.

In addition to the issue of possible mediating and moderating effects, some research has focused on the sense of coherence as a main independent *predictor for certain health outcomes* (Table 31.2). A study found the sense of coherence to predict care needs in hospitalized elderly, 1 month after hospital discharge (Larsson, Johansson, & Hamrin, 1995). On the other hand, sense of coherence was not a significant predictor of nursing home admission/death in community-dwelling aged at 2-year follow-up. However, some authors suggest that in the face of major health changes in old age, moving into a residential aged care facility could be considered as a successful coping strategy (Thygesen, Saevareid, Lindstrom, Nygaard, & Engedal, 2009). With respect to psychological health, sense of coherence was not found to be a significant predictor of quality of life in hospitalized elderly 12-month after hospital discharge (Helvik, Engedal, & Selbaek, 2014), nor of depression in community-dwelling highly-aged at 5-year follow-up (Lundman et al., 2010). As to mortality, sense of coherence has been shown to be a significant predictor for mortality in community-dwelling highly-aged at 1-year, but not at 4-year follow-up (Lundman et al., 2010).

In studies exploring *stability of sense of coherence* in old age (Table 31.2), there seems to be a trend towards higher sense of coherence scores with ageing. However, a major limitation of studies on stability of sense of coherence in community dwellers is that most of these are cross-sectional. Therefore, they do not allow to draw conclusions about change of sense of coherence in the life course; differences might be due to cohort effects, and even in longitudinal studies, differences in the direction of increasing sense of coherence could be due to survivorship bias.

Intervention Research (Table 31.2)

According to Billings and Hashem (2010), very few studies have specifically applied salutogenic principles in interventions to promote positive health among older people. Some research applied concepts that relate to salutogenic principles, like coping and mobilization of resources and social support. So far, no interventions explicitly addressing and testing sense of coherence as a mediator for health changes in residents have been conducted though there are various suggestions for interventions (Cole, 2007; Drageset et al., 2014; Drageset, Nygaard, et al., 2008). However, of relevance is a small intervention study on residents with minor depression in a continuing care community setting. The spirituality based intervention led to a significant decrease in anxiety and there was a trend towards decreased depression. There was a non-significant trend towards an increase in sense of coherence in the group who did individual prayers (Rajagopal, MacKenzie, Bailey, & Lavizzo-Mourey, 2002).

There are very few intervention studies in community dwellers that explicitly used and scientifically tested salutogenic principles and concepts. These few studies are often limited by small sample sizes; the most prominent intervention mode has been physical activity. A study using different types of physical activity (yoga, meditation, endurance, strength) found a significant increase of sense of coherence, independent of the type of activity (Wiesmann, Rölker, Ilg, Hirtz, & Hannich, 2006). In addition, there was a significant increase in overall well-being, somatic well-being, and subjective psychological health, while there were no effects on subjective physical health and symptom reporting (ibid). In accordance with these results, a study which investigated the effect of physical activity on immune response to influenza vaccination in old adults found a significant time by treatment interaction, with a slight increase in sense of coherence in the intervention group and a slight decrease in sense of coherence in the control group (Kohut et al., 2005). Moreover, improvements in sense of coherence accounted for some of the exercise-associated increase in immune response to vaccination (ibid). In contrast to these findings, a study among old adults after a hip fracture found no significant effect of intensive strength training on sense of coherence, although there were improvements in muscle strength, power and self-reported outdoor mobility (Pakkala et al., 2012).

Besides physical activity interventions, a study using psychotherapy found an increase in participants' sense of coherence, with the strongest effect on the comprehensibility component of sense of coherence (von Humboldt & Leal, 2013). To the contrary, an intervention using self-care

telephone talks found no effects on the sense of coherence of the participants (Sundsli, Söderhamn, Espnes, & Söderhamn, 2014).

Discussion: Implications and Challenges for Research on Salutogenesis in Residents Respectively, Community Dwellers

So far there are very few studies that have specifically applied salutogenic principles to promote positive health among residents respectively, the community dwellers. Yet, a sound understanding and testing of theoretical assumptions seems essential to design effective health promotion interventions. Thus, we can see various theoretical and methodological implications for research on salutogenesis in aged and highly-aged:

First, the concept "general resistance resources" is often used unsystematically and in an unquestioned way. Some have used psychological variables (e.g., psychological traits, self-complaints) as general resistance resources; others have used psychological variables as mediators between sense of coherence and health outcomes. However there are also considerations whether sense of coherence and some psychological traits like resilience, purpose in life and self-transcendence, share a common "area," which could be looked upon as a person's "inner strength" (Nygren et al., 2005), which questions the usefulness of additionally using these measures as general resistance resources.

Second, researchers should consider that Antonovsky developed different hypotheses on how sense of coherence might influence health status. Figure 31.1 gives an overview of three basic designs of analysis, which have been used to test assumptions of the salutogenic model in cross-sectional studies in aged and highly-aged persons.

Some studies introduce the sense of coherence as an independent determinant of health outcomes, which correlates with other health determinants (Fig. 31.1a). Others have investigated sense of coherence as a mediator of the effects of general resistance resources on health status (Fig. 31.1b). Antonovsky stated that the sense of coherence is shaped through the repeated experience of the availability and of successful coping through general resistance resources. Then, in turn, the sense of coherence is thought to influence the individual's health status (partly through various mechanisms like attitude/behavior change, emotions, and psychoneuroimmunology) (Antonovsky, 1996; Wiesmann & Hannich, 2010). Finally yet importantly, moderation analysis is used to test further hypotheses (Fig. 31.1c). A strong sense of coherence might enable the person to activate and apply his/her general resistance

resources appropriate for the specific stressor and thereby influence health (Antonovsky, 1996; Wiesmann & Hannich, 2010). Another assumption states that a high sense of coherence might play an especially prominent role in those people with few general resistance resources; i.e., that a high sense of coherence might buffer negative effects of having few general resistance resources on health.

Besides investigating these basic mechanisms, there is also the question whether sense of coherence is (especially) important in general or in specific situations respectively in general or vulnerable groups. Antonovsky claimed that life is inherently stressful. Thus, some researchers have investigated a general sample assuming that sense of coherence should be a relevant health determinant in all participants (independent of actual stressful life events). Antonovsky further suggested that the strength of sense of coherence would determine whether the outcome of stressful life events would be noxious, neutral, or salutary (Antonovsky, 1987). In this context, some studies have examined the relevance of the sense of coherence among people that recently experienced a stressful life event (e.g., accident, hospitalization, loss of a significant other, etc.). Yet it is possible to test assumptions of Fig. 31.1a–c but simultaneously control whether the expected association is only evident in the group with a stressful life event by introducing "stressful life event" as (another) moderating variable (i.e., moderated mediation; two moderators). These methodologically elaborate designs test for conditional indirect effects, which have been defined as "the magnitude of an indirect effect at a particular value of a moderator (or at particular values of more than one moderator)" (Preacher, Rucker, & Hayes, 2007). As far as the authors know, such elaborate designs have not been applied in this context so far but might be interesting to test the theoretical assumptions on interrelations of the salutogenic concepts in cross-sectional studies.

A sound understanding of theoretical assumptions supported by empirical findings is essential to design effective health promotion interventions. So far, cross-sectional research on salutogenesis in aged and highly-aged persons has often not properly reflected and considered theoretically diverging hypotheses; it would be interesting to systematically test diverging theoretical hypotheses (e.g., Wiesmann & Hannich, 2014; for example in middle aged samples see Albertsen, Nielsen, & Borg, 2001; Hogh & Mikkelsen, 2005).

Finally, it seems crucial that interventions in intervention studies are designed to actively address the sense of coherence components, are need-oriented and focus on the entire person (Antonovsky, 1996) rather than including the sense of coherence just as a secondary outcome.

Conclusions

So far, there is very little research applying salutogenesis in residential aged care. A major limitation is that aged and highly-aged with cognitive impairment have mostly been excluded from the research, which raises major doubts about the generalizability of the findings that are reported. The applicability of the salutogenic paradigm to guide effective health promotion intervention for older people receiving health and social services is as yet uncertain. So far, only a few intervention studies among the comparatively healthy and active community-dwelling segment of the older adult population have explicitly applied salutogenesis to promote participants' health and these studies are often of restricted value due to small sample sizes. Yet, the scant literature that is available and highlighted in this chapter suggests that salutogenesis is a promising concept to guide health promotion with care-dependent aged and highly-aged people. Given the relevance of the approach and the lack of research, taking the salutogenic orientation explicitly into account in the design and testing of interventions in residential care and community settings, where frail older persons need/receive social healthcare, seems a worthy priority for future research.

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Isabelle Aujoulat, Laurence Mustin, François Martin, Julie Pélicand, and James Robinson

Introduction

Improvements in treatment and health technologies have led to a substantial rise in life expectancy in children and adolescents with chronic illness. It is now estimated that up to 90 % of children with chronic illness will survive into adulthood (Pai & Schwartz, 2011). While these improvements are welcome, they bring with them new challenges for hospital services. Not least is the need for new ways of working with patients, in order to take into account the unique developmental and psychosocial needs of adolescents and young adults with chronic conditions (Sawyer, Drew, Yeo, & Britto, 2007).

Traditional care has been based on identification of health deficits and providing interventions to alleviate or resolve those deficits (Rotegard, Moore, Fagermoen, & Ruland, 2010). While such an approach to care remains legitimate it is insufficient in addressing health needs (Burns, 2009).

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Successful coping with chronic illness requires the adolescents to take control of their own care and management. Developmentally adolescence is itself a challenging time as the young person moves from childhood to adulthood. This life stage transition has its own stresses which can be exacerbated by the accompanying stresses associated with their condition.

A crucial period for the adolescents is when they move from pediatric care to adult services. Successful transition is essential for the maintenance of health. It has been well-established that adolescents are at greater risk of non-adherence than children and adults. The consequences of a failure to successfully transition can be seen in transplant services: Up to a third of adolescents transitioning from pediatric to adult services have experienced rejection within 3 years (Beard, 2013).

There is a paradox to non-adherence in adolescents: Whereas it is medically dangerous and therefore needs to be prevented or corrected, non-adherence to a certain extent makes sense psychologically, as adolescents try to develop a sense of self that is separated from their parents and that is not dominated by illness. Thus, the experience of non-adherence, although particularly risky for certain groups of young patients, may from the psychological point of view be seen as a step in the process of internalizing motivation to self-care. When faced with the occurrence of non-adherence behaviors in their patients, practitioners need to carefully and respectfully investigate what it means for a particular patient to be non-adherent, as this apparently destroying behavior may in fact reveal attempts to construct one's self psychosocially and developmentally (Wolff, Strecker, Vester, Latta, & Ehrich, 1998). The need to establish a continuous and valuable sense of self is probably the most important developmental challenge met by adolescents (Luyckx, Goossens, & Soenens, 2006).

Adolescents with a chronic condition have to cope with an extra challenge: The psychological challenge of

integrating one's identity as an ill person with other dimensions of one's identity, in order to experience life and illness as challenges worth living. Indeed, risks may arise and translate into self-management difficulties when an adolescent's identity as an ill person is overshadowing other identities (Tilden, Charman, Sharples, & Fosbury, 2005).

Illness centrality refers to the extent to which the illness experience plays a central or peripheral role in an individual's self-definition (Helgeson & Novak, 2007). There is some evidence that illness centrality is detrimental to well-being (Helgeson & Novak, 2007; Park, Bharadwaj, & Blank, 2011), psychosocial adjustment to illness (Morea, Friend, & Bennett, 2008), and the development of self-care abilities (Adams, Pill, & Jones, 1997; Helgeson & Novak, 2007; Tilden et al., 2005). The successful integration of various identities into a consistent sense of self should therefore be acknowledged as an important developmental task which healthcare providers should support in adolescent patients.

In order to do so, healthcare practitioners need to truly embrace the health promotion orientation. This means that healthcare providers, as Antonovsky puts it, need to "focus on salutary rather than risk factors, and always see the entire person (or collective) rather than the disease (or disease rate)" (Antonovsky, 1996). In other words, healthcare providers should acknowledge and support their young patients' self-care needs in the three dimensions that were identified by Kickbusch (1989) as defining self-care in the broader perspective of health promotion (as opposed to narrow disease management and prevention): psychosocial life, general health, and responses to illness demands (Kickbusch, 1989). Whereas self-management usually refers to developing autonomy in managing one's condition and treatment in everyday life, self-care is a broader concept, which encompasses not only autonomous management of medical and treatment-related tasks, but also the capacity to attend to one's broader psychosocial needs (Pelicand, Fournier, Le Rhun, & Aujoulat, 2015). In other words, practitioners need to help people "take greater control of the non-medical determinants of their own health" (Herbert, Visser, & Green, 1995). This is precisely the aim of clinical health promotion (Herbert et al., 1995). However, the results of a recent literature review in the field of pediatric diabetes show that most studies on self-care fail to address the psychosocial dimension of it (Pelicand et al., 2015). Parents should be encouraged to make consistent demands and provide consistent support not only with medical aspects, but also with regard to psychosocial issues (including relations with peers) that matter to their adolescent children.

How Do Salutogenic Concepts Relate to the Needs of Adolescent Patients with Chronic Conditions?

The process of developing autonomy and responsibility for treatment and psychosocial life-related tasks needs to be supported in developmentally appropriate ways. This entails counseling parents about what is developmentally appropriate at different ages in terms of shared management of a pediatric condition (Bell et al., 2008; Kieckhefer & Trahms, 2000). A key factor involved in a successful transition process, is that of a good collaboration between the young patients, their parents, and the whole healthcare team in supporting the young patients' growing self-management capacity (Modi et al., 2012). As van Staa et al. put it, transition programs need to "focus on strengthening adolescents' independence without undermining parental involvement" (van Staa, Jedeloo, van Meeteren, & Latour, 2011).

The importance of family factors has been evidenced in a systematic literature review which examined the factors influencing the development of a strong sense of coherence in adolescents (Rivera, García-Moya, Moreno, & Ramos, 2013). Antonovsky's sense of coherence is a three-dimensional construct, that he operationalized with a 29-item scale (and a shorter 13-item scale) to measure a general life-orientation which encompasses a sense of comprehensiveness, manageability, and meaningfulness (Antonovsky, 1993). Scoring high on the sense of coherence has been repeatedly found to associate with better health outcomes (Eriksson & Lindstrom, 2005, 2006).

As they transition from parentally controlled care to self-managed care and from pediatric care to adult care, chronically ill adolescents are facing many challenges, one of them being to find their own ways of fitting their medication intake schedule into their daily life-schedules.

However, on their road to independence, adolescents and young adults with chronic conditions do not face only cognitive and behavioral challenges related to the understanding and management of their condition. They also face important psychological and spiritual challenges, one of them being to make sense of their own medical history, in order to develop a sense of meaning and purpose for their lives (Aujoulat et al., 2014). This three-faceted -cognitive, behavioral, and spiritual- challenge is well-captured in Antonovsky's aforementioned three-dimensional construct of the sense of coherence (Antonovsky, 1996; Antonovsky & Sagy, 1986).

What makes the sense of coherence unique among other health outcome measures, is that it combines the dimension

of meaningfulness to that of control, a psychological construct generally associated with successful processes of adaptation and coping (e.g., self-efficacy, healthlocus of control, etc.). Indeed, whereas great emphasis is usually put on the importance of cognitive and behavioral factors to better control one's condition, the dimension of meaningfulness is of utmost importance to those who experience chronic illness (Hydén, 1997; Mathieson & Stam, 1995; Toombs, 2013). People with chronic conditions often struggle with conflicting priorities of managing illness and containing symptoms while engaging in activities that are congruent with valued social roles and positive identities (Townsend, Wyke, & Hunt, 2006). Meaningfulness is a very important and yet too often neglected issue in prevalent theorizations of chronically people's empowerment processes (Aujoulat, Marcolongo, Bonadiman, & Deccache, 2008; Aujoulat, Young, & Salmon, 2012). Findings from a qualitative study with patients with advanced cancer support this hypothesis with some insight from in-depth interviews that meaning is an important part of an adaptive process towards developing a strong sense of coherence and a positive sense of self (Lethborg, Aranda, Bloch, & Kissane, 2006). Moreover, a recent study on emerging adults provides evidence of a relationship between meaning and psychosocial adaptation, with young people scoring high on the presence of meaning in their lives showing the most adaptive psychosocial functioning (Dezutter et al., 2014).

In light of the challenges faced by young people who grow into adulthood with a chronic condition, Antonovsky's sense of coherence construct potentially provides a general framework to set directions toward developing autonomy-supportive self-management interventions in health promotion-oriented healthcare settings. In other words, we hypothesize that patient education interventions need to focus on three types of objectives if they are to strengthen the capacity to self-care in adolescent patients: that of (1) developing sufficient and adequate information in general health and disease-related issues, (2) finding the necessary resources to successfully manage one's condition while pursuing one's own life goals, and (3) developing a valuable and continuous sense of self and purpose.

On the other hand, the sense of coherence construct may be seen also as a valuable patient outcome, to assess the impact of patient education interventions. As the sense of coherence questionnaire is generic and has been translated and validated in many languages, it is potentially a valuable instrument to enable comparisons across different countries with different healthcare systems. In the following paragraphs, based on the findings of a scoping literature search, we will look at how the sense of coherence has been used in research on adolescents with chronic conditions. More specifically, we will look at how the sense of coherence may be associated with important

medical as well as psychosocial outcomes that are relevant to adolescent health and development: (1) adherence and self-care; (2) general health behaviors; (3) perceived health, quality of life and general well-being; and (4) a sense of self and identity.

Sense of Coherence in Relation to Adherence and Self-Care

We hypothesized that a strong sense of coherence in young people with chronic conditions would be an indicator of successful self-management work, and searched the literature for evidence of a relation between scoring high on sense of coherence and developing specific self-care abilities, including motivation to self-care and treatment adherence.

However, studies looking at the impact of the sense of coherence on adherence or self-care in chronically ill pediatric patients are scarce. In a study involving 123 adolescents with cystic fibrosis, scoring higher on the sense of coherence was significantly associated with self-care agency (Baker & Denyes, 2008). With reference to Orem's theory of self-care (Orem, 1985), the authors defined self-care agency as encompassing health knowledge, decision-making capacity, valuing of and attention to health, as well as having enough energy to care for oneself (Baker & Denyes, 2008).

Our search for other studies regarding possible associations between sense of coherence and adherence or self-care yielded mixed results. Moreover, although some of them may have included late adolescents or young adults, none of the identified studies was specifically carried out in pediatric settings. We believe however that the following results are worth reporting, so as to further confirm the relevance of our hypothesis that it is worth investigating the sense of coherence in relation with self-management issues in adolescent patients.

Although some of the studies carried out with adult patients did not confirm the hypothesis that sense of coherence is related to higher adherence rates or self-management issues (Corless et al., 2006; Kamwendo, Hansson, & Hjerpe, 1998), a significant relationship between the sense of coherence and adherence was evidenced in the field of HIV, where less adherent patients were found to score lower on the sense of coherence (Cederfjall, Langius-Eklof, Lidman, & Wredling, 2002). Conversely, a significant relationship between good adherence and higher scores of sense of coherence was found in relation to hypertension (Nabi et al., 2008), as well as type 1 and type 2 diabetes (Cohen & Kanter, 2004). Moreover, the sense of coherence was found to impact positively one's motivation to self-care, in patients with HIV (Sodergard, Halvarsson, Lindback, et al., 2006; Sodergard, Halvarsson, Tully, et al., 2006), patients

with tuberculosis (Corless et al., 2006), and patients needing to attend a cardiac rehabilitation program after infarct (Breuer & Etienne, 2001).

Sense of Coherence in Relation to General Health Behaviors

Self-management of a chronic condition entails not only monitoring symptoms, attending to health visits and taking medications as prescribed. Chronically ill adolescents also need to develop a positive attitude toward their health in general, and avoid risky health behaviors, as these, precisely because of their chronic condition, might deteriorate their health even more than that of their healthy peers with similar behaviors (Sawyer, Drew, & Duncan, 2007; Sawyer, Drew, Yeo, et al., 2007). As part of a general self-care issue, we therefore searched the literature for some evidence of how the sense of coherence relates to general health behaviors in adolescents with or without chronic conditions. We hypothesized that the sense of coherence would have a protective effect for general health behaviors.

Indeed, a prospective cohort follow-up study in Finland evidenced that a strong sense of coherence in 15-year-old adolescents was significantly associated with better social competence and less drinking and smoking (Mattila et al., 2011). However, no such evidence emerged from another Finnish study, conducted in a sample of young students followed up for 3 years (Kuuppelomäki & Utriainen, 2003). The association between the sense of coherence and two major risk behaviors—drinking and smoking—that represent a very high burden in terms of incidence and prevalence of non-communicable diseases worldwide, is therefore inconsistent and needs further investigation.

We further looked at associations between the sense of coherence and physical activity, which is an important protective factor for people's health. Positive and reciprocal associations between the sense of coherence and experience of physical activity, as well as attitude to physical education were found in a study in Sweden. This study involved 301 adolescents who were assessed using the SOC-13 questionnaire (Sollerhed, Ejlertsson, & Apitzsch, 2005). Moreover, there is some evidence that a health-related physical education program that, congruently with a salutogenic approach, encourages adolescents to pursue self-determined and individualized physical activity objectives, may significantly impact levels of physical health and sense of coherence (Bronikowski & Bronikowska, 2009). Likewise, in patients with psychiatric disabilities and simultaneous somatic conditions, repeated lifestyle interventions that took place over a significant time-period were found to improve both physical health and the sense of coherence (Forsberg, Björkman, Sandman, & Sandlund, 2010).

Finally, we looked for evidence regarding sense of coherence and medication use. Inappropriate use of medicines in adolescents is probably an under-investigated issue which, as suggested by Andersen et al. could be regarded as part of a cluster of risk behaviors among adolescents (Andersen, Holstein, & Hansen, 2006). There is some evidence from a study in Denmark that lower sense of coherence scores in adolescents with frequent headaches are associated with more medication use by adolescents, suggesting that adolescents may use pain relief-medication as an inappropriate coping mechanism (Koushede & Holstein, 2009). This raises a double concern: Chronically ill patients may experience higher levels of potentially psychosomatic symptoms on the one hand, and have more readily access to medication as a way of coping with such symptoms on the other hand.

Sense of Coherence in Relation to Perceived Health, Quality of Life, and Well-Being

Most findings on how sense of coherence relates to perceived health, quality of life and well-being in adolescents with chronic conditions originate in studies conducted by a Belgian research team at Catholic University of Leuven (http://www.kuleuven.be/switch2/i-DETACH.html). This team initiated a comprehensive research project aimed at understanding and supporting the transition process of adolescents and young adults with congenital heart disease (CHD). Using the SOC-13 questionnaire, they assessed the sense of coherence in 429 young people with CHD (14–18 years), and found that higher sense of coherence scores and better physical health explained better quality of life in patients, compared to healthy controls (Apers, Moons, et al., 2013); and that sense of coherence at time 1, in a longitudinal study over a 9-month period predicted several domains of general and disease-specific perceived health at time 2 (Apers, Luyckx, et al., 2013). Positive associations between the sense of coherence scores and quality of life measures were evidenced also in other samples of adolescents with CHD, for instance in Japan, in a sample of 172 adolescents aged 12–18 (Nio, 2010); in Australia, in a sample of 114 patients aged 12–20 (Wang, Hay, Clarke, & Menahem, 2014); or in Germany, in a sample of 770 adolescents aged 14–17 (Neuner et al., 2011). The SOC-13 questionnaire was used in all of these studies, except for Neuner et al.'s study, where the sense of coherence was measured with a shortened version, the SOC-L9 questionnaire (Schumacher, Wilz, Gunzelmann, & Brahler, 2000). Moreover, positive associations between the sense of coherence and quality of life measures were found also in a sample of long-term survivors of Hodgkin's lymphoma (Wettergren, Björkholm, Axdorph, & Langius-Eklöf, 2004).

A strong correlation between the sense of coherence measures and emotional health outcomes, such as state anxiety and state depression measures, was evidenced in a survey which included 1183 school children aged 13–19 in Norway (Moksnes, Espnes, & Lillefjell, 2012). A study involving a clinical sample of adolescent female psychiatric patients and a non-clinical sample found similar results, with adolescents scoring high on the sense of coherence having also less anxiety or depressive symptoms (Henje Blom, Serlachius, Larsson, Theorell, & Ingvar, 2010). This led the authors to question whether the sense of coherence mirrors anxiety and depressive symptoms, rather than measuring a distinct construct.

Sense of Coherence in Relation to Self and Identity Issues

In a pioneering work involving 194 young adults with type 1 diabetes, Luyckx et al. demonstrated that scoring high on the sense of coherence was associated with processes of identity development (Luyckx et al., 2008) and that a sense of adulthood, i.e., perceiving oneself as an adult, was associated with better glycemic control and better coping with illness demands (Luyckx, Moons, & Weets, 2011). In another study involving 48 diabetic patients aged 12–18 (Ho, Lee, Kaminsky, & Wirrell, 2008), scoring higher on self-concept as assessed by the Piers-Harris Children's self-concept (Piers & Harris, 1984), correlated with patients' more positive attitudes toward their condition, independently of the severity of their condition.

Other authors have tackled indirectly the relation between the sense of coherence and a sense of self and identity, through constructs of self-esteem or stigmatization. In a sample of young people with uncomplicated epilepsy (Gauffin, Landtblom, & Räty, 2010), sense of coherence declined in some young adults who were still experiencing epilepsy seizures, as compared with young adults who were free of seizures. Moreover, seizures impacted on self-esteem as well, an important attribute of a sense of self and identity. These findings echo some previous findings in a sample of 200 people with current and past mental health problems, where perceptions of sense of coherence and self-esteem were negatively impacted by experiences of feeling rejected (Lundberg, Hansson, Wentz, & Bjorkman, 2009).

Summary of Main Findings, Research Gaps, and Implications for Practice

Moons and Norekval hypothesized that a strong sense of coherence may be a "pathway for improving the quality of life in children who grow up with chronic diseases" (Moons & Norekval, 2006). According to these authors, a strong sense of coherence may be shaped as children successfully develop mechanisms to cope with their disease and the stressful situations that are inevitably encountered when growing up with a chronic condition. Unfortunately, our literature search revealed a paucity of research specifically looking at how the sense of coherence relates to major challenges that are faced by adolescents transitioning to adulthood while having to cope with the demands of a chronic condition.

One of these challenges is that of developing autonomous self-care behaviors while adhering to prescribed regimens, and developing a continuous and valuable sense of self, shaped through meaningful personal and social experiences. Although identity development is a prominent developmental task during adolescence and young adulthood (Arnett, 2000), the impact of chronic illness on identity development, and how this shapes the development of the sense of coherence or how the sense of coherence is influenced by potentially impaired or enhanced processes of identity development, remains an under-investigated issue. The pathways between SOC, identity work, and coping with illness demands are important issues which deserve further attention, in order to help clinicians elaborate developmentally appropriate health promotion and patient education interventions for young people who face the challenge of growing up with chronic conditions.

Our main recommendation is that adolescents need to be helped to cope with the concomitant and interrelated developmental and self-management challenges. In order to do so, professional and family caregivers need to develop practices that are sufficiently autonomy-supportive. Such practices must acknowledge the adolescents' need to be addressed not only about disease and treatment-related issues (i.e., self-management issues), but also about general health issues (including communication about protective as well as risky health behaviors) and psychosocial issues (including awareness of their illness experience and the development of psychosocial competences).

Moreover, such practices need to acknowledge the adolescents' self-determination need, by encouraging participation and providing choice whenever it is possible (Aujoulat, Janssen, Pire, Mansveld, & Reding, 2013). Last but not least, adolescents need to be trained to develop self-regulation skills, which include the capacity to define specific health objectives, and identify relevant implementation and feedback strategies on the one hand (Maes & Karoly, 2005), and to develop sufficient stress regulation competency on the other hand (Hampel, Rudolph, Stachow, & Petermann, 2003).

Although there is some evidence that the sense of coherence correlates positively with emotion awareness and negatively with somatic complaints in school children

(Jellesma, Rieffe, Terwogt, & Kneepkens, 2006; Jellesma, Rieffe, Terwogt, & Westenberg, 2011), how the sense of coherence relates to emotion regulation in young people who grew up with a chronic condition and transition to adulthood is yet an under-investigated issue. Following increasing evidence that emotional competence plays an important role in the development and maintenance of health (Brown, Ryan, & Creswell, 2007), it has been recommended that mindfulness interventions be implemented in healthcare settings (McCabe Ruff & Mackenzie, 2009).

To adopt a salutogenic perspective of health, i.e., focusing on strengthening health assets rather than risk factors, as was recommended by Antonovsky (Antonovsky, 1996), is congruent with evidence from evaluations of positive psychology interventions (Sin & Lyubomirsky, 2009), as well as recommendations from youth development models (Blum, 1998; Kia-Keating, Dowdy, Morgan, & Noam, 2011). Moreover, recommendations on how to put salutogenesis into practice for patients with chronic conditions in hospital settings have been issued in relation with the development of the concept of Health-Promoting Hospitals (Pelikan, Krajic, & Dietscher, 2001). A synthesis of the evidence regarding salutogenesis in hospitals is presented in Chap. 27 of this book (Dietscher, Winter, Pelikan. Salutogenesis in hospitals), as well as a synthesis on the sense of coherence in adolescents by Brown-Lewensohn et al. in Chap. 14

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A Portal to Salutogenesis in Languages of the World

33

Bengt Lindström

Introduction

Several considerations have triggered this Section of the book:

- First, Antonovsky claimed his key concepts within the salutogenic framework were universal, meaning SOC and GRRs could be studied in any society. The empirical evidence on SOC so far seems to support this with few exceptions.
- Second, the early critics of Antonovsky pointed out that the research mainly was concentrated around his own research team and some of his Scandinavian friends. This has never been true; we have researched on salutogenesis in all continents of the World and translations of the SOC instrument into at least 49 languages.
- Third, most scientific literature is today presented in English, meaning research in other main language groups does not appear in most literature searches. This leaves much cultural nuance outside the mainstream salutogenesis literature.
- Finally, it is about networking. Young researchers who plan to start studies in their countries and language groups will have great benefit of getting in contact with native researchers, enabling discussions and establishing national research teams and networks.

This section thus serves as a portal to salutogenesis writing of scholars working in languages other than English. There are already extensive language group networks such as the Spanish—Ibero American Network based at the

Girona University, the French Canadian Network based in Montreal, and the German Network and other National networks.

Shortly before Antonovsky's death, he published the first international literature review on the SOC (Antonovsky, 1993). This included only a few publications because it was right after the introduction of salutogenesis in research. The second and much larger literature review published was the work of Lindstrom and Eriksson eventually leading to Eriksson's, 2007 Ph.D. dissertation 'Unravelling the Mystery of Salutogenesis,' and the establishment of the research database www.salutogenesis.fi later converted into www.salutogenesis.hv.se (Eriksson, 2007; Lindström & Eriksson, 2010).

This chapter adds to the previous efforts, taking a new twist: salutogenesis scholars with mother tongue capability have summaries not the English language literature, but their own literatures in their own mother tongues. We do not, of course, cover all countries in which research on salutogenesis has been published in national languages. However, the following chapters do give a snapshot of salutogenesis research in many countries and most continents.

The rest of this chapter highlights some of the key perspectives in the literature on salutogenesis reviewed in the following chapters. Each language chapter has a concluding remark that partly is cited in this introduction. Most of the contributing scholars have conducted systematic reviews in national databases to compile the material for their text.

A general finding across the chapters of this section is that the second book by Antonovsky, Unravelling the Mystery of Health, has been translated to many of the languages included here. Also, the book that today serves as a primer of salutogenesis, the Hitchhikers Guide to Salutogenesis, is available in English, Spanish, and French (refs). It is also obvious that there is quite an extensive literature written in the old colonial languages: English of course, but also

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French, Spanish, and Portuguese, across national boundaries. This is also evident for literature in German. The same goes for the German speaking countries in Europe.

Afrikaans, South African Union

Although English is the main language in Afrikaans, South African Union (SAU) today, about seven million people speak Afrikaans, and a further 30 million people outside SAU speak the language. The SOC instruments have been translated into two other SAU languages beyond English and Afrikaans. The first study in Afrikaans was published in 1992. Most of the studies were cross-sectional descriptive studies, but there are a few evaluated interventions and conceptual studies. The main themes have been focused on psychology, industrial psychology, and sports. A total of 55 masters and Ph.D. studies addressing salutogenesis have been done in Afrikaans since 1992. Twenty-two of these have also been published in Afrikaans in scientific journals.

Chinese

The first study was undertaken in 2005 when the SOC 13 instrument was translated into Chinese. Most of the salutogenic literature in Chinese takes an empirical quantitative approach, measuring SOC and analyzing its relationship with other factors of interest. Most of the research just applies SOC sense of coherence as a tool without much consideration of the whole salutogenic model of health.

Danish

The Danish language literature on salutogenesis is rather limited, mainly focusing on quantitative approaches including population studies. Some of the first work written in Danish stems from work by Hollnagel and Malterud (2000) from the mid-late 1990s. They became international portal figures in the development of qualitative approaches to medicine. They suggested salutogenesis as a relevant foundation for talking with patients in general practice about risks and health resources. Some textbooks that reach into special areas like mental health and neuropedagogics underline the use of the salutogenic model in a practical and broader perspective. In general the majority of the Danish publications use salutogenesis as a theoretical framework from which various professions can work.

Dutch

There are at least four research groups in The Netherlands which carry out research in the area of salutogenesis; however most publish primarily in English. A special Dutch feature is salutogenesis-inspired research on sustainable agriculture, nutrition, and health. In the Dutch language literature, salutogenesis is mainly conceptualized in terms of the SOC, and one of its elements: meaningfulness. Researchers have used different definitions of the SOC, including integrative ability, self-curing ability, sense or feeling of coherence, awareness of coherence, world view, control over life, strengths, resilience, and empowerment. Remarkably, generalized resistance resources are hardly mentioned in the Dutch language literature.

Finnish

There has always been a tradition in Finland to publish scientific literature in the national language, also mirrored in the number of Ph.D. theses produced in Finnish. Research on salutogenesis started in the 1980s in Finland, rather early compared to other countries. Since the start, salutogenic research expanded into most health-related fields in Finland. Salutogenesis has often been used as one conceptual basis along with other theoretical foundations and concepts: health-related quality of life, coping, social support, self-esteem, and resources. A special Finnish feature is the focus on the relationship between the concepts of life control and sense of coherence.

French

The SOC-13 and SOC-29 were translated and validated in French in 2001. French language literature expands into most areas of salutogenic research including psychology, health promotion, management, and design. Salutogenesis has moved from an original concept, to a well-established theory, towards a unifying orientation, which finally unlocked a new field of research worldwide (i.e., positive approaches to health). French-speaking countries slowly, but surely, use the salutogenic road to create health.

German

Literature on salutogenesis in the German language is extensive covering two nations; unfortunately Austria was not able to present a review here. In Germany, a special feature is the interest within sociology to critically discuss the

theoretical foundation of the salutogenic approach, mainly focused on the paradigmatic potential of the salutogenic approach vis-a-vis pathogenesis. In one of the German research groups, there is a strong emphasis on psychosomatic health and its practical implementations. In Switzerland, the number of studies of the SOC or other aspects of salutogenic theory is high, considering the fact that salutogenesis is virtually non-existent in academic considerations of health. However, there seem to be even more Master and Bachelor's theses related to salutogenic theory than formal research projects. This suggests that the interest of the coming academic generation in salutogenesis is strong—stronger perhaps than the interest shown so far by senior Swiss researchers.

Hebrew

Israel is the country where Antonovsky developed his salutogenic approach to health. Literature in Hebrew is extensive and broad-based, dating back to 1983. However, Antonovsky himself mainly published in English, eager to reach the international academic audience. In Hebrew, there were 175 titles found that focused on the sense of coherence and the salutogenic model up to 2014. Contentwise, the literature covers a broad approach to salutogenesis. The search for deeper understanding of the SOC at the personal and collective levels is of central importance, and maybe even of existential significance in the context of the Israeli reality. Exchanging the pathogenic questions about the emotional and physical cost of life in the stormy Israeli reality informs questions about resources that enable people in Israel to move towards growth and health. This can be the reason to move towards positive change in the social discourse in Israel, as well as strengthen the hope, durability, and adaptive ability of the residents of Israel. Another direction of research in the conflictual Israeli reality is the study of sense of the SOC in a more interdisciplinary way than in other countries, including studies on intergroup relationships and openness towards the "other."

Italian

The Italian language research on salutogenesis was initiated through the participation of Sardinia in the European Training Consortium (ETC) in 1993. Since then, a network of Italian academics has been involved in such research.

Japanese

The research on salutogenesis and the SOC in Japan started in 1996. Between 1997 and 2001 there were translations of Antonovsky's work and the creation of Japanese language versions of the SOC-29 and SOC-13. Today, academic literature in Japanese is impressive and extensive, covering many perspectives. Approximately 300 papers have been published in the last 11 years. The chapter here includes an account of the many scholars involved and a very interesting, detailed account of what goes on in salutogenic research in Japan.

Norwegian

One of the main research environments for salutogenesis in Norway is the Department of Health Promotion and Development at the University of Bergen, dedicated to health promotion research and teaching since 1986—however with most publications in English. There is, however, a long tradition of salutogenic research in Norway including all major Universities today and covering most aspects of this research area. An interesting trait is the strong emphasis on qualitative approaches—outnumbering quantitative approaches. This chapter gives a deep insight into the strong and many faceted nature of the Norwegian salutogenic literature. The Hitchhikers Guide to Salutogenesis was also translated into Norwegian in 2015.

Polish

Polish academics and practitioners got acquainted with the theory of salutogenesis in the 1980s, rather early compared to many other countries. This was quite likely stimulated by international conferences in psychology and bilateral research meetings. Publications in Polish language, reviewed in this chapter, are either theoretical analyses or research reports. In the former, salutogenesis is applied in a conceptual way, discussed in a variety of contexts, and related to other theoretical concepts. In the latter, the quantitative empirical approach is used and SOC is measured with validated tools. Findings of such studies provide data on correlates of the SOC and its relationship to many aspects of health and behavior.

Portuguese

Salutogenesis was introduced to Portugal in 1994 through a visit of Antonovsky. The validation of the SOC instruments was undertaken between 1997 and 1999. The chapter on Portuguese salutogenesis literature gives a very detailed account. Struggling with concepts, their translation, and meaning in a different cultural setting than that of Antonovsky, continues today to be a challenge. New perspectives have emerged in this literature, like using the SOC framework to address changes in life styles like smoking cessation or brucellosis prevention. Addressing children's well-being and focusing on mental health promotion are areas where salutogenesis in association with other approaches can help achieve the goal of promoting health and favoring well-being.

Spanish

The scientific literature on salutogenesis that has been published in Spanish since the year 2000 has been reviewed, out of which 58 scientific articles, 5 books, and 8 doctoral theses have been identified. In just a few years, the influence of the salutogenic model has been growing, both in the area of research and in public health and health promotion strategies and policies, in Spain and in Latin America. The Network of Spanish Speaking Researchers on Salutogenesis has been very influential in the development of academic research in Spanish and Catalan. Today, the Spanish-speaking academic scene is many faceted and lively, as presented in this chapter.

Swedish

Antonovsky spent a Sabbatical in Lund, Sweden (1987–1988) and initiated salutogenic research both in Sweden and Scandinavia through his contacts at the Nordic School of Public Health in Gothenburg. He later became an Honorary Doctor at the Nordic School (1993). Today salutogenesis has a productive, solid, and geographically broad-based foundation in Sweden. Many scholars and practitioners in different contexts are familiar and implement the salutogenic approach in research. The review for this chapter revealed that there are nowadays many handbooks and textbooks in Swedish on how to use the concept for studies in universities and colleges and in everyday practice. In line with this, a specific resource center on salutogenesis was established in 2011 at the University West in Trollhättan, aiming at support education on health and well-being, and conduct research on salutogenesis, and serving as a partner in collaboration and cooperation with the local community (www.salutogenesis.hv.se).

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Perspectives on Salutogenesis of Scholars Writing in Afrikaans

CS (Karin) Minnie and FG (Frans) Minnie

Introduction

Afrikaans has its origin in the seventeenth century after settlers from the Netherlands started a way station at the southern point of Africa. More than 95 % of the vocabulary originated from Dutch but there are also words originating from Malay, Portuguese, French, German, English and other African languages.

The language is spoken by nearly seven million people in South Africa. Approximately another 20 million people globally can speak Afrikaans as their mother tongue or second or third language. Universities in the Netherlands, Belgium, Austria, Germany, Poland and other countries also present Afrikaans as subject.

Afrikaans is one of 11 official languages in South Africa, but with English, one of only two that is developed as academic language with more than 200 Afrikaans subject dictionaries. In the last few years however, Afrikaans seems to be losing ground. In government institutions, some private companies and at universities, the idea has gained prominence that English, as global language, is more valuable for education and communication. Most research is published in English in order to reach a wider audience, both internationally and nationally, as most people in South Africa (also Afrikaans first language speakers) are fluent users of English.

The pioneers who started working on salutogenesis in Afrikaans in the early 1990s were Deo Strumpfer, Tyrone Pretorius and Marie Wissing. They have also validated the sense of coherence instrument for different South African groups and translated it in other South African indigenous languages like Setswana and Sesotho.

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The Main Research Environments

Studies published in Afrikaans in which salutogenesis is addressed or in which the Afrikaans translation of Antonovsky's sense of coherence instrument was used, were conducted at five South African universities. These universities are North-West University (previously known as the Potchefstroom University for Christian Higher Education), Stellenbosch University, the University of South Africa (UNISA), the University of Pretoria and the University of the Free State (previously the University of the Orange Free State). Most of these studies were done at the North-West University.

The Search for Salutogenesis Literature in the Afrikaans Language

The literature search was conducted using the South Africa ePublications data base of Sabinet and the NEXUS data base for current and completed South African Masters dissertations and Ph.D. theses. The search words salutogenese, kohesiesin and Antonovsky were used alone and in combination. The only limitation was Afrikaans as language. The search yielded a total of 83 publications. Clearly irrelevant publications and duplicates were removed. A total of 79 publications were left: 45 Masters Dissertations, 10 Ph.D. Theses and 24 journal articles. A few of the Masters and Ph.D. studies were also published as journal articles (Coetzee, 1999; Coetzee & Rothmann, 1999; Kriel, 2004; Kriel, Wilders, & Strydom, 2008; Kriel, Wilders, Strydom, & Breytenbach, 2005, 2008; Laubscher, 2001; Laubscher, Strydom, & Dreyer, 2003; Malan, 2001a, 2001b; Pretorius, 2000; Pretorius & Rothmann, 2001; Redelinghuys, 2003; Redelinghuys & Rothmann, 2005; Rothmann & Malan, 2003; Van Eeden, 1997; Van Eeden & Wissing, 2008). No books or book chapters published in Afrikaans could be found.

The earliest publication found was from 1992, namely the Masters dissertation of Lategan under the supervision of Spangenberg at the University of Stellenbosch, about androgyny and attribution styles as sources for efficient stress management (translated from Afrikaans).

Disciplines

Most of the research conducted was done in psychology and industrial psychology. There were also a few studies in sport and recreation science, educational psychology, theology and even history. Nowadays most studies are published (mostly in English) in the new discipline of positive psychology (Psycholofortology).

Some studies focus on specific aspects of psychological well-being such as the illumination of the cognitive component of psychological well-being by Brown (2002), determining personality characteristics in the salutogenic paradigm (Breed, 1997) and the development of a structural comparison model for the relation between coherence perception, coping strategies and job satisfaction (Lohann, 2001). Nel (1998) developed a cohesion model for the salutogenic approach to stress, while Van Eeden (1997, 2008) did an in-depth study of psychological well-being and sense of coherence. Wilmans (1996) investigated age and gender as variables in the salutogenic paradigm. Construct clarification and model testing on the nature of coping was done by Putter (1998).

A number of studies used the sense of coherence instrument as part of the development or evaluation of a variety of development programmes, for example with prisoners (Botha, 1996), farmers (Botma, 2004), musical young adults (Burger, 1999), people living in a violence afflicted milieu (Kruger, 2000) and elderly persons (Van Zyl, 1994).

Others used the sense of coherence instrument as part of a battery of tests on people with challenges such as pupils with learning disabilities (Botma, 2001), hypertension patients (Botha, 2001), single parents (Coetzee, 2000), homosexual people (Dreyer, 2003; Reynhardt, 1998), older people with Alzheimer's disease or rheumatoid arthritis (Heyns, Viljoen, & Odendaal, 2004; Viljoen, 2001), wheelchair athletes (Jonker, 2000), emergency personnel (Oosthuizen, 1995; Strydom, 1995), teachers at a school for the deaf (Nel, 2000), caregivers of patients with Alzheimer's disease (Potgieter, 2001; Venter, 2001), caregivers of AIDS patients (Steenkamp, 2005; Steenkamp & Potgieter, 2008) and caregivers of intellectually challenged adults (Wahl & Newmark, 2009).

Very few studies were done on development or verifying of instruments. Bouwer (2004) determined the psychometric characteristics of the family coherence questionnaire and the family functionality questionnaire for use with North Sothos (an ethnic group in South Africa). Van Quickelberge (2000) studied the psychometric characteristics of a number of scales under Setswana speaking people.

A large number of studies were done in industrial psychology, for example the study of salutogenesis in an organizational context by Viviers (1996). The translated sense of coherence instrument was often used as part of a set of instruments to compile a profile of characteristics of individuals that form part of a specific group, such as people in the same profession or doing the same work. Examples of these type of studies are stress, coping strategies, social support and the psychological and physical well-being of academics (Bach, 2000), characteristics of managers in different types of companies (May, 2000; Bezuidenhout, Strydom, Dreyer, & Merwe, 2003; Prinsloo, 1995), clergymen from different denominations (Breytenbach, Wilders, Strydom, & Breytenbach, 2005; Kriel, 2004; Kriel et al., 2005, 2008; Malan, 2001a, 2001b; Redelinghuys, 2003; Redelinghuys & Rothmann, 2005; Swanepoel, Esterhuyse, Beukes, & Nortje, 2012), work teams in the chemical industry (Buitendach & Stander, 2004), employees of a financial institution (Human, 2002; Pretorius, 2000) and social workers (Malan, 2001a, 2001b).

Themes/Constructs

The relationship between different constructs was studied by researchers such as Rothmann and Agathagelou (2000), who examined the relationship between locus of control and job satisfaction in senior police personnel. Van Vuuren (2000) studied the locus of control, sense of coherence and psychosomatic diseases in police officers. Venter (2001) studied the relationship between psychofortological factors and burnout in nurses caring for patients with Alzheimer's disease. The connection between feelings of coherence and stress-related symptomatology amongst staff of the Department of Correctional Services was studied by Gous (1998).

Other Topic Areas

A number of researchers studied salutogenic characteristics in order to promote physical health (Du Toit et al., 2013; Erasmus, 2002; Grove & Wilders, 2009; Labuschagne, Strydom, & Wilders, 2011; Laubscher, 2001; Laubscher, Strydom, & Dreyer, 2003; Scott, 2000; Van Staden, Grobler, & Esterhuyse, 2006), temperament of adolescents (Van Zyl, 2007), personality types (Fourie, 2000), and locus of control and job satisfaction (Geyser, 2000).

Claassens (1997) as well as Du Toit (2000) concentrated on coping skills and psychological well-being amongst

teenagers. Fouche and Rothmann (2001) put emphasis on the coping skills of managers in the transformation process.

A few researchers concentrated on psychological well-being as a construct of the sense of coherence with spirituality (Fourie, 1999), self-concept (Greef, 2000), coping skills (Van der Wateren, 1997) and crisis-intervention programmes for the South African Police Service (Van Vuren, 1999).

Two history papers were also published. Mcleod (2005) and Mcleod and Pretorius (2002) used psychological constructs to interpret the experiences and behaviour of two South African historical figures, General J. H. de la Rey and President M. T. Steyn.

Final Comments

A total of 55 masters and Ph.D. studies addressing salutogenesis have been done in Afrikaans since 1992. Twenty two of these have also been published in Afrikaans in scientific journals. Most of the studies were cross-sectional descriptive studies. A few evaluated interventions (Botha, 1996; Botma, 2001; Burger, 1999; du Preez, 2001; Kruger, 2000; Van Zyl, 1994), while others studied salutogenesis in a conceptual manner (Breed, 1997; Brown, 2002; Lohann, 2001; Nel, 1998; Putter, 1998; Van Eeden, 1997; Van Eeden & Wissing, 2008; Wilmans, 1996). A substantial number of studies addressing various aspects of salutogenesis have been done in Afrikaans. One review article has been published (Coetzee et al., 2010) Research in this area is still being done in South Africa although mostly in English.

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Junming Dai, Xingyu Lu, and Hua Fu

Introduction

This chapter presents Chinese contributions to the salutogenesisChinese contributions, salutogenesis literature literature. It has been more than 40 years since Antonovsky put forward the theory of salutogenesis in the 1970s. Chinese research institutions and researchers have learnt from, adapted, and used salutogenesis, with some literature now published, though the first step towards salutogenesis was relatively late in China compared to the Western countries. Cultural differences and varying traditions may play an important role in the use of salutogenesis in research, projects, and teaching in different countries. Along with a wish to highlight relevant research environments in China, we present a brief profile of the literature on salutogenesis which has been published in Chinese.

The Main Research Environments

The salutogenic model of health and the salutogenic concept have been used by a number of Chinese researchers and research environments. One of the main research environments for salutogenesis is East China Normal University (ECNU). ECNU is also one of the pioneer universities that first focused on salutogenesis since 2005. Professor Liu at ECNU has been dedicated to the revision of the sense of coherence −13 scale to develop a Chinese version, paving the way for research on salutogenesis in China.

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More recently, Southwest University has made great effort to study salutogenesis. So far, Southwest University has produced the greater part of the salutogenesis literature in Chinese, applying the theory to various groups. Meanwhile, Shandong University has paid much attention to the study of the sense of coherence in clinical fields, with a substantial production of salutogenesis literature since 2010. Other main research environments include Hebei Normal University, Shanghai Normal University, and Zhejiang University.

In sum, the main research environments of interest are normal universities that take up salutogenesis in teaching, departments of psychology in comprehensive universities that focus on mental development research, as well as some medical schools, applying salutogenesis to health issues, and the school of public health in Fudan University is now along with this team.

The Salutogenesis Literature in Chinese

The first mention of salutogenesis in Chinese literature was the study of the sense of coherence and its influencing factors, led by Zhou and her colleagues at Zhejiang University, published in the journal *Psychological Science* in 2003 (Zhou, Ma, & Li, 2003). Then, Bao and Liu introduced their work on the sense of coherence at the Tenth Chinese Conference of Psychology in 2005. Among all collected papers from the conference, there were three articles concerning the sense of coherence in particular and salutogenesis more generally. Over the next decade years, salutogenesis has received increasing attention. The number of publications on salutogenesis literature in Chinese in the period 2010–2014 is three times than that in the period from 2003 to 2009.

The literature can be sorted according to at least two criteria, the publication format and the centrality of salutogenesis in the publication. Here, we restrict the focus

to publications which mention important concepts from the salutogenic model of health, such as generalized resistance resources and/or sense of coherence, and exclude work merely mentioning the word salutogenesis to indicate a way of thinking. With regard to publication format, research articles, books and book chapters, and quality publications in other formats (reports) are included. Master's theses and Doctoral dissertations are not included.

The literature search was conducted using the Chinese literature databases "China National Knowledge Infrastructure" and "Wanfang Data." When using "salutogenesis" or "salutogenic model of health" as search terms, no more than ten publications in Chinese are identified. However, when using the search term "sense of coherence," the result was much more fruitful, and we see that the sense of coherence is the main research focus in the Chinese literature on salutogenesis.

It is impossible to do justice to every publication due to the space limitation of this chapter. However, the overview will give the reader a chance to identify publications of interest.

A series of publications have reviewed research progress in the salutogenesis research arena both nationally and internationally, such as Research Progress on the Salutogenic Model of Health (Chen & Xue, 2010) and The Current Situation and Prospects of Research on the Sense of Coherence (Xi, Zhang, Xiao, & Lei, 2014).

Great effort has been made to study the sense of coherence and to develop a Chinese version of the SOC-13. Liu Junsheng and his colleagues have studied the reliability and validity of Chinese Version (Bao & Liu, 2005). The study shows that the quality of items is high; the scale has good criterion-related validity with Cronbach's alpha =0.76 and a three-factor model was founded by exploratory factor analysis, which confirmed Antonovsky's hypothesis. He and his colleagues have also carried out research to develop the Children's Sense of Coherence Scale in Chinese Cultural Context (Liu, Zhou, & Sang, 2010). The result of MANOVA showed a significant grade and gender difference in the sense of coherence scores. Overall, the results suggested the Chinese version of the sense of coherence scale provides a reliable and valid measure of children's sense of coherence in the Chinese cultural context. The latent structure of the sense of coherence in the Chinese cultural context has been studied (Zhou & Zheng, 2006) and results also supported Antonovsky's proposition that the sense of coherence consists of meaningfulness, comprehensibility, and manageability.

Patient and Caregiver Groups

Salutogenic literature related to particular patient groups has mostly focused on the relationship between behaviors and mental health, using the sense of coherence as an indicator of mental health. Patient groups consist of those with chronic diseases, cancers, Parkinson disease, and patients who underwent surgery.

In a study of the correlation between self-care behavior and psychological concordance and depression in 120 Type 2 diabetes patients, Lin, Lin, and Wan (2009) found the mean score of the sense of coherence of patients was 56.53 ± 14.65 and found self-care to be positively correlated with psychological concordance, and to be negatively correlated with depression.

In a study of the relationship between the sense of coherence and medication adherence in patients with hypertension, Li and Fan (2012) found that patients' sense of coherence (58.78 ± 10.44) could affect their medication adherence, and urged attention to the cultivation of the sense of coherence in order to improve medication adherence.

In a study of the relation of health promotion behavior to the Sense of Coherence and depression in cancer patients with a PICC (Peripheral Inserted Central Catheter) Line, Zhang, Gao, Sun, and Li (2014) suggested a positive relationship between the health promotion behavior and sense of coherence (50.0 ± 6.7) while suggesting a negative relationship between health promotion behavior and depression.

Analogously, in a survey of the relativity among sense of coherence, depression, and coping style in patients with Parkinson's disease (Chen & Zhang, 2014) and a study on the sense of coherence in patients with permanent colostomy (Zhang & Ma, 2013), the results both showed a positive correlationship between healthier behavior and higher sense of coherence, suggesting one direction of intervention to improve patients' health condition.

In addition to patients, Caregivers also deserve attention.

In a study of factors associated with caregiver burden of lung cancer (Shi et al., 2012), sense of coherence of caregivers has been measured to explore the indicators of the burden on lung cancer caregivers. In this project, a cross-sectional survey was developed and data was collected by face-to-face interview. Zarit caregiver burden interview (ZBIZarit caregiver burden interview (ZBI)) was used to access the level of caregiver burden. Results showed that the extent of the impact of caregiving on the family caregivers' transportation and health were the risk factors, while sleeping hours and sense of coherence were the protective factors.

Occupational Health

Among the Chinese Salutogenic literature, there is one part concerning occupational career, most of which has explored the relation between sense of coherence and job presence or job absenteeism, especially within occupational groups such as nurses, policemen, and athletes.

In a study for the effect factors of nurse position holding and resignation and sense of coherence level on the job burnout, Wang, Mao, Zhao, and Han (2012) investigated 286 nurses with the Maslach Burnout Inventory, sense of coherence, and questionnaire of factors for nursing position holding and resignation. The result showed that it could relieve the job burnout effectively by enhancing the sense of coherence for nurses.

In a study of mediating the role of sense of coherence in relationship between self-efficacy and job burnout of policemen (Hu, Li, & Zhang, 2014), 1126 police from 18 areas of Henan province were investigated. Hu and his colleagues found that both self-efficacy and sense of coherence were significantly negatively related to the three dimensions of job burnout. Besides, self-efficacy was significantly positively related to the sense of coherence; Sense of coherence mediated the relationship between self-efficacy and emotional exhaustion completely, and partly mediated the relationship between self-efficacy and depersonalization as well as personal accomplishment reduction.

In a study of the level of sprinters' sense of coherence and its influence factors, Xu (2008), investigated 120 sprinters on the sense of coherence and its influencing factors. The results showed a significant difference of the sense of coherence between sprinters and ordinary young people, and the former one (54.75 ± 11.26) is significantly higher. It also suggested no significant difference between male and female sprinters in the sense of coherence. Moreover, there is significant difference in the level of the sense of coherence between two groups of sprinters who had participated in competitions beyond province level and had not yet. That is, competition experience influences the sense of coherence of sprinters.

These jobs mentioned above are often under stress. According to these researches, it seems that the sense of coherence is important to regulate both physical and mental states.

Age Groups

One part of Chinese salutogenesis literature has focused on some particular age groups for people in different life stages with different characteristics.

When it comes to children, in a study of the relationship between left-at-home children's sense of coherence, peer attachment, and mental health, Yang, Hu, Guo, and Zhang (2012) surveyed 327 students in China's southwest regions with the SOC-13, the peer attachment subscale in the IPPA (Inventory of Parent and Peer Attachment), and the MSSMHS (Middle School Students Mental Health Scale). Left-at-home children is a group who do not live with their parents together over 6 months or more long time and often live with their grandparents. They found that the left-at-home children showed a significant gender difference in their sense of coherence (girls' =53.02 ± 4.94 and boys' =51.61 ± 5.66): the girls showed a significantly higher degree of sense of coherence as well as peer attachment. Besides, senses of coherence, peer trust, peer communication, and peer attachment have a significantly positive correlation with their mental health.

For adolescents, in a study of the mediating effect of sense of coherence between life events and stress consequences on adolescents, Zhou, Li, and Liu (2010) found a negative relationship between the sense of coherence (54.26 ± 8.48) and depression, and a positive relationship between the sense of coherence and happiness. Also, sense of coherence played an important mediating role in adolescents' coping with life events and stress.

With regard to the elderly, Li and Yang focused on the study of relationship of sense of coherence and subjective well-being among the elderly in Chinese rural area (2013). They concluded that the comprehensibility and meaningfulness dimensions of sense of coherence had some predictive validity for subjective well-being of the rural elderly.

Other Topic Areas

Other Chinese Salutogenic literature covers topics like drug abuse, posttraumatic stress disorder, and so on.

In a study of relationship between resilience and sense of coherence for rehabilitating drug abusers (Gao, 2013), the Chinese revision of Connor Davidson Resilience Scale and Sense of Coherence-13 scale were used to survey 365 rehabilitating drug abusers. And Gao found a positive correlation between resilience and the sense of coherence.

In a study of the relationship between the sense of coherence and posttraumatic stress disorder (PTSD) of medical staff in Sichuan earthquake area where 8.0 magnitude earthquake occurred in 2008 (Li, Zhou, & Shi, 2010), Essen Trauma Inventor (ETI) and Sense of Coherence-13 were applied to 706 medical staff in the earth quake area. Li et al. came up with conclusions: PTSD irritation symptom and sense of meaningfulness of medical staff in the earthquake area were associated with genders (females higher than males) and age (the older higher than the younger);

Sense of coherence played a cushioning, regulatory, and predictive role in PTSD development.

Final Comments

A limited number of Chinese language papers introduce salutogenesis in a general way, but most of the salutogenic literature in Chinese takes an empirical quantitative approach, measuring the sense of coherence and analyzing its relationship with other related factors of interest. Most of the research just applies sense of coherence as a tool without laying out the whole salutogenic model of health. In China, there is room for the development of the salutogenic theoretical perspective and the salutogenic model of health in a variety of fields, especially in the area of health promotion.

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Vibeke Koushede and Stig Krøger

Introduction

Searching through the Danish literature on salutogenesis, it quickly becomes apparent that this research area has not received much attention in Denmark. There are to date no Danish research environments that stand out in relation to a focus on salutogenesis. A few Danish researchers have conducted studies using a salutogenic perspective, but the research effort appears sparse and uncoordinated. Over time researchers at different universities—primarily at the University of Copenhagen, and at the Danish National Institute of Public Health at the University of Southern Denmark—have conducted studies examining associations of sense of coherence and physical health, health behaviour, reproductive health, work stress, and sociodemographic factors. The majority of the publications are in English and will therefore not be presented here.

Recently the Danish Healthy Cities Network has established a theme group around mental health. The working foundation for this group is based on a salutogenic perspective (Thybo, 2014). Researchers at the National Institute of Public Health working with mental health promotion are also inspired by this perspective (Koushede, 2014, 2015).

Literature Search

The literature search was conducted in (1) Danish literature databases; Det Kongelige Bibliotek (The Royal Library), and Den Danske Forskningsdatabase (Danish National Research Database); (2) International databases; PubMed Medline, Embase/PsycInfo, Cinahl, and Web of Science. In all these resources, the truncated term salutogen* (the Danish word for salutogenesis is salutogenese) was used, except in the Danish National Research Database which does not accept truncation. Instead the original term of interest salutogenese was used. Furthermore, sense of coherence was searched as "sense of coherence" in all resources. For all resources, the only limitation set was language = Danish.

Regarding the format of the literature, research articles (print/electronic), books, book chapters, reports, and doctoral theses have been included since the salutogenic model and the concept of salutogenesis are identified within a wide range of literature. Additional quality publications have also been included in order to give the reader a good overview. We have focused on literature where salutogenesis constitutes a central theme or working foundation.

Health Professions and Patient Groups

The salutogenic perspective has been used as a foundation within various health-related professions. Some of the first work written in Danish stems from the medical profession and emerged from work by Hollnagel and Malterud in the mid-late 1990s (Hollnagel & Malterud, 1995, 2002). They suggested salutogenesis as a relevant foundation for talking with patients in general practice about risks and health resources. They developed a theoretical model for a patient-centred, salutogenic approach with the aim of a better balance between health resources and risk factors. In their papers, they briefly present results of dialogues in the general practice consultation based on key questions about self-assessed health resources (Hollnagel & Malterud, 1995, 2002).

For the reader interested in a good introduction and overview of Antonovsky's theory on salutogenesis, this is presented in a popular scientific manner in two articles (Thybo, 2003, 2004) as well as in a Danish research-based

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book on mental health promotion (Koushede, 2015) all aimed at healthcare professionals.

Nielsen presents a salutogenic framework for professionals working with children and adolescents with problem behaviour (Nielsen, 2004). In her PhD thesis on restrictive eating among children with diabetes or overweight Mark (2009) uses a salutogenic health perspective to examine the children's lifeworld.

In the book *For mental sundhed—et nyt perspektiv* (For mental health—a new perspective), the reader is given an introduction to salutogenesis which is suggested as a relevant underlying theoretical framework for mental health promotion (Koushede, 2015). In *Sundhedsfremme i hverdagen* (Health promotion in everyday life), the reader is similarly given an introduction to salutogenesis followed by examples on how to work with health promotion using a salutogenic perspective with different population groups (Fredens, Johnson, & Thybo, 2011).

Thybo has written a comprehensive textbook on neuropedagogy using a salutogenic perspective. The book is aimed at professionals working with individuals with neuropsychological difficulties, and anyone interested in neuropedagogy (Thybo, 2013).

Population Groups

Danish population studies have examined the distribution of sense of coherence in relation to age, sex, social class, and self-rated health (Due, 1993; Due & Holstein, 1998). The role of sense of coherence has also been examined in population studies on stress and medicine use (Koushede, 2010).

The research project *Den sociale arv og mønsterbrydere* is based on a salutogenic foundation. In their book the researchers present results from their work related to social inheritance and to those who manage to break negative social patterns. Also they set forward recommendations for policy-makers (Elsborg, Hansen, & Hansen, 1999).

Interventions using a salutogenic approach have been suggested as a positive way to work with and strengthen children and adolescents with problem behaviour, and to increase their possibilities of participating actively in their social spheres (Nielsen, 2004).

Final Remarks

The Danish language literature on salutogenesis is limited with a scarcity of quantitative studies. The majority of the few publications presented above use salutogenesis as a

theoretical framework from which various professions can work.

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Lenneke Vaandrager, Maria Koelen, and Floor Dieleman

Introduction

This chapter presents literature on salutogenesis published in Dutch, which is quite limited since it is uncommon for salutogenesis scholars to publish in Dutch (or Flemish). Most Dutch researchers try to get their research published in English-language scientific journals. However, we did come across a number of interesting publications in Dutch. The search for these publications was carried out by Floor Dieleman as a part of her bachelor degree in Health & Society at Wageningen University.

There are at least four research groups in The Netherlands which carry out research in the area of salutogenesis.[1] The group Health and Society of Wageningen University has published a number of studies, but most of them are in English (articles, dissertations, and master's theses). However, they have also published the general ideas about salutogenesis in Dutch (Koelen et al., 2013; Vaandrager, 2013; Vaandrager & Koelen, 2011).

At the Applied University of Leiden, Eric Baars (medical doctor and epidemiologist) and Guus van der Bie (a retired GP who currently teaches doctors in the Netherlands) are active in doing salutogenic research (Baars & Van der Bie, 2009). Their research relates to the field of anthroposophic health care, health by self-regulation, and phenomenology.

At the University of Amsterdam, Francine Jellesma is known for her interest in salutogenesis and children's social and emotional development (Jellesma, Rieffe, et al., 2006, Jellesma, Terwogt, et al., 2006). Most of her work related to salutogenesis was carried out during the time she was working on her PhD dissertation at the University of Leiden (Jellesma, 2008). She has mainly published in English but also in Dutch.

The Louis Bolk Institute, an independent international knowledge institute to advance sustainable agriculture, nutrition, and health, is also a group doing research related to salutogenesis (Huber, 2010). Most of this research is about a new definition for health and the ability to adapt (Smid, 2013).

The Literature

Salutogenesis has been addressed in the Dutch language since the Healthy Cities movement in the 1990s (Cosijn, 1992), and gained renewed attention during the celebration of 50 years of health promotion in The Netherlands (Huber, 2010; Melse & Hoeymans, 2012; Paes, 2013; Saan & De Haes, 2012; Smid, 2013). A number of Dutch language publications are also related to a national Dutch conference on salutogenesis in 2013, organized by the Health and Society group at Wageningen University (Koelen et al., 2013).

The literature search for this chapter in Dutch scientific journals used the search terms *saluto, Nederland, Sense of Coherence, SOC, "levensorientatie" (life orientation), "positieve psychologie" (positive psychology), "veerkracht" (resilience), resilience, coping, general resistance resources, and GRR. In total, 189 publications were found. For inclusion in the text part of this chapter, we selected publications in which in authors not only mentioned salutogenesis but also specified salutogenesis as a starting point in their research, for example, conceptually or by measuring the sense of coherence or generalized resistance resources. This resulted in 19 publications in total (Baars, 2005;

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[1] As is evident from the reference list in this chapter, there are other scholars in The Netherlands carrying out research from a salutogenic perspective and writing in Dutch, but most are not affiliated with the research groups mentioned here.

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Damen, 2008; Dijkers & Crul-Kelderhuis, 2003; Geenen et al., 2005; Giesen & De Mare, 2010; Güldner et al., 2010; Hoekman, 2009; Jellesma, Rieffe, et al., 2006; Jellesma, Terwogt, et al., 2006; Jellesma, et al., 2009, Kuiper & Bannink, 2012; Moons et al., 2006; Roemer, 2007; Smeijsters, 2006; Tjaden, 2004; Van der Ploeg, 2013; Van Heck & Van Uden, 2005; Van Werven-Bruijne, 2006; Warmenhoven et al., 2014). We also found a number of websites and popular articles referring to salutogenesis and alternative medicine which had a bit more popular character. We decided only to include the more serious type of research publications.

Development Psychology

As in many other countries, salutogenesis in The Netherlands is area of interest in developmental psychology, especially focused on children. Jellesma and colleagues developed a sense of coherence questionnaire for children (SOC-K). She found a stable negative relationship of the SOC-K with somatic complaints, social anxiety, and depression (Jellesma, Rieffe, et al., 2006, Jellesma, Terwogt, et al., 2006). In another study, she compared emotional functioning of children from three different groups: one group of children without medical complaints, a second group of children who received medical help because of functional abdominal pain or constipation, and a third group of children from a nonclinical population reporting many somatic complaints. As part of the study she used the SOC-K questionnaire. The clinical group had lower sense of coherence scores than the others (Jellesma, Rieffe, et al., 2006, Jellesma, Terwogt, et al., 2006). Jellesma and colleagues have also compared children with and without physical complaints, findings that those with complaints had lower sense of coherence scores than children without complaints (Jellesma et al., 2009).

In another Dutch psychological development study, it was found that a healthy self-imagination is characterized by feelings of competence, self-acceptance, and a strong sense of coherence (Güldner et al., 2010). Two additional Dutch studies from clinical development psychology describe a strength-based model and the importance of promoting resilience of children (Kuiper & Bannink, 2012; Van der Ploeg, 2013).

Workplace Health

Workplace health research is a second professional area in which the salutogenic perspective is evident. Van Werven-Bruijne (2006) carried out a study about the self-perceived level of recovery ability and the health of patients, and how occupational doctors perceived the recovery ability and health of these patients. Patients who were involved in an intervention to prevent absence due to illness and who visited their occupational health doctor completed the Dutch version of the three-item sense of coherence questionnaire conceived as an indicator of recovery ability. Their doctor completed a similar questionnaire about the employee and the results were compared. No significant difference was found between the self-perceived level of recovery ability of employees and the perception of occupational doctors about recovery ability. However, employees were more satisfied about the care received if the perception of the employee and their doctor were corresponded closely (Van Werven-Bruijne, 2006).

Mental Health

To study drop-out from different types of addiction treatment, Tjaden (2004) used the SOC-13 as one of many study measures; although the differences were small, higher meaningfulness scores seemed to be a possible explanation for lower likelihood of drop-out (Tjaden, 2004).

Roemer (2007) also considered the role of meaningfulness, in an essay about support for people with an addiction. He stresses that it is important to become aware of what drives people with an addiction, and to unravel what is important for them and what are they striving for. According to the author, this requires a professional attitude which is more concerned with addicts' strengths and assets than with their problems and deficits.

From a more spiritual and religious perspective salutogenesis is described by Van Heck and Van Uden (2005) in a paper that summarizes evidence that connects religion and spirituality to health. The sense of coherence is described in this paper as a psychosocial factor that gives meaning to illness and health. The religious coping that is described in this publication refers to giving meaning to higher forces, such as God and the transcendent. The authors describe that the process of discovery, conservation, and rediscovery of *the sacred* touches the essence of religion and spirituality (Van Heck & Van Uden, 2005).

Medicine

Within the medical literature we found a few studies based on salutogenesis. One of them concerned patients with the Ehlers-Danlos syndrome (EDS), a tissue disorder (Geenen et al., 2005). The author describes the somatic, psychological, and social impacts of EDS and reported that a strong sense of coherence and social support appeared to protect against the negative impacts of EDS.

Eric Baars (2005) has published a book about anthroposophic health care often referring to salutogenesis. He writes about sense of coherence as a self-regulating structure. In anthroposophic health care much attention is paid to the interlinkages between the body, soul, and mind, as well as lifestyle, meaningfulness, and physical determinants of health and illness. The active support of the self-healing ability of human beings, an equal relation between patient and caretaker and the development of natural medicines are central elements of anthroposophic health care.

Dijkers and Crul-Kelderhuis (2003) wrote about salutogenesis in a practical medical journal, pointing out that the self-healing potential of patients might be facilitated by asking the patients about their qualities and making them aware of their own potential to deal with disease.

In the area of palliative care, Warmenhoven et al. (2014) have called for care givers to use a salutogenic approach with less emphasis on symptoms and risk factors, and more on finding resources of inner strength to enable the patient to acknowledge and accept their sadness and "die well."

Moons et al. (2006) refer to a strong sense of coherence as a possible explanation for the observation that some adults with early onset congenital heart disease are more positive about their quality of life than expected; they suggest that patients who grew up with congenital heart disease have probably developed a stronger sense of coherence than people without heart disease, because they learned to deal with their illness, and because heart surgery can have an important existential meaning. Individuals that have had surgery often experience their cardiac surgery as a turning point in their lives. The authors found that surgery improves the physical capacity of patients and had enhanced their appreciation for the "little things" in life.

Care for People with Disabilities

Hoekman (2009) used the salutogenic perspective to explain the importance of promoting the self-management abilities and grow potential of people with disabilities, rather than take the problem and disease-centered perspective. He advocates to remove barriers and to create healing environments (e.g., using soft colors in buildings for people with disabilities and creating warm atmospheres in meeting rooms) to enable clients to "find their balance".

Musical and Art Therapy

Music therapists with anthropology backgrounds have used salutogenesis as an inspiration for treatment (Damen, 2008; Smeijsters, 2006). According to these authors, music is health-promoting because it provides experiences of self-control, autonomy, meaningfulness, and personal creativity. Giesen and De Mare (2010) claim that art experience energizes children and connects thinking and doing with their own experience.

Final Observations

In the Dutch language literature, salutogenesis is mainly conceptualized in terms of the sense of coherence, and one of its elements: meaningfulness. Researchers have used different definitions of the sense of coherence, including integrative ability, self-curing ability, sense or feeling of coherence, awareness of coherence, world view, control over life, strengths, resilience, and empowerment. Remarkably, generalized resistance resources are hardly mentioned in the Dutch language literature; only three studies mentioned this aspect of salutogenesis explicitly. Most often salutogenesis was applied in a conceptual way (12 studies), but we also found seven studies with empirical research, all of which took a quantitative approach to measuring the sense of coherence.

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Introduction

Aaron Antonovsky's theory of salutogenesis (Antonovsky, 1987, 1996) has been used as a conceptual framework in Finnish literature since the 1980s in fields such as social policy (Söderqvist & Bäckman, 1988; Järvikoski, 1994; *Raitasalo, 1995, 1996; *Marski, 1996), medicine (*Uutela, 1992; *Vahtera, 1993; Suominen, 1993) and other health sciences (e.g. Pietilä, 1994, 1998). There have been certain features in the use of the theory of salutogenesis specific to the Finnish discussion. In the late 1980s, the discussion focused on the relationship between the concepts of life control and sense of coherence. Söderqvist and Bäckman (1988) expanded Antonovsky's concept to include the idea of life satisfaction, naming the resulting concept as life control. Despite criticism directed at this idea, life control has been used in many studies (e.g. *Uutela, 1992; Häggman-Laitila, 1992; Härkäpää, 1993; Pietilä, 1994), and connections between life control and multidimensional health aspects, factors improving health choices and people's ability to stay healthy have been identified. Bäckman (1990) and Suominen (1993) suggested that persons with strong life control consider themselves healthier than individuals with poor life control. Based on earlier research (*Vahtera, 1993; Pietilä, 1994; Söderqvist & Bäckman, 1988; Suominen, 1993), it is possible to find connections between life control, the sense of coherence, health, health choices and stress and a person's ability to use his/her own resources successfully. The sense of coherence has been seen as an internal resource affecting the individual's ability to use external resources (e.g. *Vahtera, 1993).

In this chapter, we focus on the research literature on salutogenesis published in Finnish. Our aim is to describe emerging themes. We also reflect on how salutogenesis is related to creating health as addressed in the Finnish literature.

Literature Searches

We conducted systematic literature searches in Melinda, a joint database for literature for all universities in Finland, and Medic, a national, scientific database for Finnish research publications. We used search terms concerning the theory of salutogenesis (e.g. koherenssi*, sense of coherence and salutogen*). We limited our search to the Finnish language and publications between 1980 and 2014. We included doctoral dissertations, chapters of text books and research papers. In addition, we conducted manual searches based on the reference lists of the selected publications and were able to find additional publications by using this approach.

We found 12 dissertations (Table 38.1), 9 chapters in textbooks (marked as * in the reference list) and six research papers (marked as ** in the reference list). The dissertations included qualitative and quantitative studies, as well as combinations of these approaches, for example mixed methods (Miettola, 2011). The literature included a cross-sectional study (Honkinen, 2009), follow-up studies

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(Kukkurainen, 2006; Ylilehto, 2005) and a study based on documents (Järvikoski, 1994).

Theoretical Basis of Salutogenesis

The textbook chapters were focused on the theoretical basis of salutogenesis. Lindström and Eriksson (2010) described a salutogenic approach to health (see also *Vertio, 2003; *Pietilä, 2010). They also summarised the meaning of the theory on the resources of health. *Raitasalo (1995) explored factors connected to coping in the context of social policy, and this book included discussion of well-being and coping strategies, and life control and sense of coherence. *Marski (1996) described the dimensions of welfare (threats, opportunities and new challenges). The well-being of the Finnish population was examined through questions concerning health, autonomy of agency, sense of coherence and standard of living (*Marski, 1996, see also Karisto et al.1992). A book by *Raitasalo, (1996) on the meaning of coping as a social policy concept was based on lectures and comments of researchers and report analysis.

Theoretical Explanations and Applications

The research papers focused on theoretical explanations and applications of salutogenesis or related concepts (e.g. **Häggman-Laitila, & Pietilä, 1993; Härkäpää, 1993). Salutogenesis as a theory or an approach was described in some articles, also including the context of diseases (**Lindström, & Eriksson, 2008; **Pietilä, Kangasniemi, & Halkoaho, 2013; Miettola, 2011). In a systematic review (**Pietilä, Matero, Kankkunen, & Häggman-Laitila, 2008), sense of coherence was considered to define a personal, global orientation. The aim was to describe and evaluate sense of coherence and related factors among adults with a long-term disease.

The themes that emerged in the dissertations (Table 38.1) focused on certain diseases and coping processes as well as resources, hope and strengthening factors among young people, the sense of coherence and health and also connections between these and mental health.

Some research themes focused on adolescents and families. One issue concerned the maintenance and strengthening of hope among young people (Tikkanen, 2012). The study pointed out that it is important that young people have faith in the existence of hope and that other people respect the hope of the young people.

Unique longitudinal research by Honkinen (2009) observed that childhood behavioural problems at the age of three predicted poor sense of coherence at the age of 18.

Poor sense of coherence was associated with psychological symptoms and behavioural problems in adolescence. Contrary to assumptions in Antonovsky's theory, there was no significant change in sense of coherence from the ages of 15–18, and the stability of sense of coherence did not depend on the initial level. Slight fluctuation at the individual level was perceived in the sense of coherence scores. When studied cross-sectionally, insufficient physical exercise, less than excellent marks in mathematics, weak sense of coherence, insufficient social support from teachers and perceived various problems in class climate were associated with perception of poor health in 12-year-old school children.

Eirola' s (2003) dissertation aimed to produce evidence-based information for the promotion of the health of families. Life control was approached from the perspectives of life control potential: as a sense of coherence, satisfaction with life and interpersonal relationships. As a result, the parents' self-esteem, motivation to develop their skills and commitment to the requirements of family life increased. The life satisfaction and social relationships were improved. Furthermore, the life control skills of the families with small children were enhanced.

A salutogenic study on women's experiences during the puerperium indicated that those who suffered from severe depression were not devoid of coping methods (Ylilehto, 2005). The most important coping methods included seeking social support, keeping a distance, physical exercise, relaxation by reading, cognitive methods, religion and humour. The support given by one's husband or significant other played an essential role in recovery.

Challenging questions have been addressed regarding integration processes, the sense of coherence typology and sense of coherence in persons belonging to vulnerable social groups. This research has included a focus on how changes in immigrants' sense of coherence were connected to their social activities, Finnish language studies and work orientation during the integration process (Mammon, 2010).

A dissertation by Tuloisela-Rutanen (2012) examined the sense of coherence typology with the grounded theory method and found that the higher scores in the sense of coherence resulted in a higher amount of factors in the typology that increases integrity. The way in which various difficulties in everyday life are perceived by the individual is essential. Enhanced integrity improved the ability to deal with the challenges of life. We also found a study considering vulnerable groups of people; Kallio's (2005) dissertation pointed out that prisoners' sense of coherence strengthened when they received treatment for their substance abuse issues.

Kukkurainen (2006) described the sense of coherence, social support and quality of life of fibromyalgia patients. Health-related quality of life improved in the lowest sense of coherence category. Sense of coherence was higher among

Table 38.1 Doctoral dissertations in Finnish and aims/purpose

Author	Year	Title	Aim/purpose	Publisher
Tikkanen, Kaija	2012	Hope among young people (15–20 years). (English title not available)	To describe hope and the factors that maintain and fortify it from the point of view of young people aged between 15 and 20 years	Unit of Health Sciences, University of Tampere
Tuloisela-Rutanen, Maija-Stiina	2012	Sense of coherence (SOC)—typological examination with grounded theory approach	To deepen the knowledge about sense of coherence of working age adults (aged 28–60)	Department of Public Health, University of Turku
Miettola, Juhani	2011	Searching for health: possibilities of salutogenesis in metabolic syndrome	To examine the applicability of a salutogenic approach to the prevention of Metabolic Syndrome (MetS) at the community level	Faculty of Health Sciences, University of Eastern Finland
Mammon, Reet	2010	The integration process of three ethnic groups in Finland	To find out how three ethnic immigrant groups' sense of coherence and changes in it promote adaptation during the integration process	Education, Psychology and Social Research, University of Jyväskylä
Honkinen, Päivi-Leena	2009	Sense of coherence in adolescence : measuring, predictive factors, consequences	To explore the stability of sense of coherence (SOC) in adolescence and the associations between childhood psychological symptoms and sense of coherence in adolescents	Department of Public Health, University of Turku
Kukkurainen, Marja Leena	2006	Fibromyalgia patients' sense of coherence, social support and quality of life	To describe the sense of coherence, social support and quality of life of fibromyalgia patients, as well as the changes taking place in these areas over the course of a year	Faculty of Medicine, University of Oulu
Kallio, Tarja,	2005	Challenges and opportunities of substance abuse clients: difficulty, sense of coherence and care (English title not available)	To examine the associations between sense of coherence and care among clients	Department of Social Psychology, University of Helsinki
Ylilehto, Hannele	2005	Postpartum depression—blocked joy. A salutogenic study of women's experiences during childbed	To examine the time after a child is born in the everyday life of a family from the salutogenic perspective	Department of Psychiatry, University of Oulu
Jaari, Aini	2004	Self-esteem, sense of coherence and values—correlational study among Finnish adults on self-esteem by Morris Rosenberg (English title not available)	To investigate global self-esteem factors among Finnish men and women using the measurement of M. Rosenberg (1965)	Department of Social Psychology, University of Helsinki
Sohlman, Britta	2004	A functional model of mental health describing positive mental health. (English title not available)	To find out how the functional model of mental health might describe positive mental health	University of Helsinki
Eirola, Raija	2003	Life control potential of families with small children: evaluation of family counselling	To describe the life control potential of families with small children and to evaluate video-assisted family counselling from the viewpoint of both families and family workers	Faculty of Social Sciences, University of Kuopio
Järvikoski, Aila	1994	Vajaakuntoisuudesta elämänhallintaan? Kuntoutuksen viitekehysten ja toimintamallien tarkastelu. From disablement to empowerment? Analysing the conceptual and empirical models of rehabilitation	To propose a synthesis of conceptual and empirical models or frameworks relevant to rehabilitation	Rehabilitation Foundation, Helsinki/ University of Lapland

those who were satisfied with their life as a whole. Sense of coherence also correlated positively with the support received from relatives, health-related quality of life and life satisfaction.

Miettola's (2011) mixed methods dissertation included a cohort survey and interviews regarding sense of coherence. The health survey produced information about the prevalence of metabolic syndrome (MetS) and its link to lifestyles, health-related quality of life (HRQoL), mood and views of health. Three potential welfare intervention strategies were identified for the prevention of MetS, of which the first is the reinforcement of understanding and

valuing of health. The second strategy involves strengthening inadequate external resistance resources, and the third one includes strengthening insufficient internal resistance resources.

Sohlman (2004) produced a functional model of mental health. This study concluded that respondents living in rural areas had a stronger sense of coherence and were more frequently satisfied with themselves than those living in urban areas. Men had stronger sense of coherence than women. A good socioeconomic situation and living with another person were factors that strengthened positive mental health.

Jaari ([2004](#)) investigated global self-esteem factors among Finnish men and women using the questionnaire presented by Morris Rosenberg ([1965](#)). He found no connection between gender and strength of the participants' self-esteem. Higher level of education indicated better self-esteem. Poor life control and cynicism were linked to low self-esteem, whereas experiences of work-related skills and successes significantly enhanced the participants' self-esteem.

Järvikoski ([1994](#)) analysed rehabilitation with different theoretical frameworks, including sense of coherence. She concluded that the clinical paradigm of rehabilitation does not meet the comprehensive problems caused by cultural and societal changes. She suggested introducing a concept of life control in rehabilitation, which covers the dimensions of experience, action and descriptive aspects of the life course.

Conclusions

A substantial part of the salutogenesis literature in Finnish appears in the form of doctoral dissertations. For pragmatic reasons, Finnish researchers select international journals in the English language for publishing their work. This invokes the question: are the authors of dissertations subsequently publishing aspects of their work in international journals, or is this considerable corpus of salutogenesis scholarship 'trapped' in the Finnish language?

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Mathieu Roy, Mélanie Levasseur, Janie Houle, Claire Dumont, and Isabelle Aujoulat

Introduction

In this chapter, we present the concept of salutogenesis with respect to literature produced by French-speaking researchers worldwide. Toward this goal, a nonexhaustive review of the literature was conducted. The results of our search are presented in the first section of this contribution. The evolution of this concept, and its contribution to the emergence of a new field of research, is then discussed.

Salutogenesis and its theory (i.e., sense of coherence, generalized resistance resources, and stressors) have been explored by French-speaking researchers. To locate this literature, we searched for specific keywords (i.e., salutogenesis, salutogenic, Antonovsky, and sense of coherence) across different databases (e.g., Medline, PubMed, PsychInfo, Cinahl, Francis, and Google scholar) in French, but also in English to locate French-speaking researchers who chose to publish their work in English. This search was completed by examining references of resulting hits. This procedure has highlighted a literature on salutogenesis in the fields of (1) psychometrics, (2) health psychology, (3) health promotion, (4) rehabilitation, (5) interior design, and (6) management.

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Salutogenesis in the Psychometrics Domain

The questionnaires SOC-13 and SOC-29 were translated and validated on 647 adults living in France (Gana & Garnier, 2001). Both scales have satisfactory reliability as well as convergent and discriminant validity with depression, anxiety, and self-actualization. Factor analyses indicated that both scales contained three dimensions (Gana & Garnier, 2001), as proposed by Antonovsky (1979). The SOC-13 was also translated and validated on French-speaking adults of the Province of Quebec in Canada (Dumont, 2003). This study demonstrated good internal consistency of the questionnaire (Cronbach's α: 0.83–0.90), test–retest reliability, and convergent validity with anxiety, social networks, and locus of control (Dumont, 2003). However, and opposite to Gana and Garnier (2001), factor analyses showed a unidimensional scale rather than a multidimensional one (Dumont, 2003).

Salutogenesis in the Health Psychology Domain

Conceptualizing health as the product of biological, psychological, and social processes (Johnston, 1994; Ogden, 2012), health psychology emerged as a discipline during

the same period as did salutogenesis. Studies in this field found that the sense of coherence mediates associations between negative experiences such as childhood trauma (Fossion et al., 2014) or stressful events (Gana, 2001), and psychological distress, depression, and anxiety among adults from France. Other studies in France found that higher sense of coherence scores were correlated with greater psychological well-being (Lambert, Étienne, & Fontaine, 2001), whereas lower sense of coherence scores predicted higher anxiety among new retirees (Gana et al., 2009a). Moreover, two main domains of research that contribute to our understanding of what creates health are currently developed in France. On the one hand, *resiliency* is a research arena that has been promoted by Boris Cyrulnik for many years (Cyrulnik, 2001, 2011). On the other hand, *positive psychology* is an emerging discipline with recent work carried out by Rebecca Shankland and colleagues (Shankland, 2014; Shankland & Martin-Krumm, 2012). Both domains focus on health assets and protective factors, and share orientations similar to that of salutogenesis.

Salutogenesis in the Health Promotion Domain

Health promotion aims to enable people, and communities, to increase control over their own health (WHO, 1986). This field differs from surveillance, protection, and prevention because it primarily addresses health and well-being rather than disease. The links between salutogenesis and health promotion are among the stronger (CIHI, 2009; Roy, 2013; Roy & O'Neill, 2012). French-speaking researchers in this field have positioned salutogenesis as a protective factor against negative mental health outcomes (Gana & Mezred, 2009; Koleck, Bruchon-Schweitzer, & Bourgeois, 2003). Other researchers used the salutogenic theory to examine the impact that perceived control over one's environment might have on health (Loslier, 1996), the relevance of generalized resistance resources to produce health (Shankland & Lamboy, 2011), and the effect of stress on health of adults living in France (Ville & Khat, 2007). The sense of coherence was also studied as a resource to cope with breast cancer and to retrieve a positive sexual life after mastectomy (Quintard, Constant, Lakdja, & Labeyrie-Lagardère, 2014). Moreover, the original work of Lindström and Eriksson (2008) entitled *Hitchhiker's Guide to Salutogenesis: Salutogenic Pathways to Health Promotion* was translated and adapted into French (Roy & O'Neill, 2012). This book addresses salutogenesis and its theory with respect to their contribution to health promotion.

Salutogenesis in the Rehabilitation Domain

Salutogenesis also entered the field of rehabilitation, a medical specialty concerned with promoting cognitive and physical functioning. Rehabilitation makes a significant contribution to reduction of disease burden and to empowering people with different disabilities (Rochette, Korner-Bitensky, & Levasseur, 2006; Thomas, 1999; Townsend, 2003). In this field, Provencher and Keyes (2010) proposed a salutogenic view of mental health rehabilitation. Indeed, because the recovering process was more important than its outcome, they supported that rehabilitation efforts should be placed on transformations that occurred throughout recovery (or on factors that facilitate it). In one study which involved adults living with cerebral traumas in the province of Quebec in Canada, Dumont (2003) observed that the sense of coherence was associated with social participation despite limitations. Finally, one qualitative study with 18 Quebec free-living older adults having various levels of disabilities identified personal factors such as inner life, adaptation, and sense of control over one's own life, as general resistance resources for better quality of life (Levasseur, St-Cyr Tribble, & Desrosiers, 2009).

Salutogenesis in the Interior Design Domain

Salutogenesis is also presented in the field of interior design. In one exploratory study undertaken with older adults in a Quebec long-term healthcare center, Boisclair (2013) examined the role of indoor planning to create *healing environments*. It was found that housing conditions that are conducive to interactions, support, pleasure, reflection, intimacy, and empowerment may be relevant to experience successful aging.

Salutogenesis in the Management Domain

We identified one study wherein salutogenesis was applied to management. In this study, the author examined which resources may help businessmen to create jobs and industries despite unfavorable economic contexts and stressors related to this work (Gharbi, 2013).

Summary of the Francophone Literature on Salutogenesis

According to the literature reviewed above, there is a relatively small body of knowledge on salutogenesis among worldwide French-speaking communities. In Francophony, more literature comes from European countries (i.e., France)

or from the Province of Quebec in Canada. This may be due to Antonovsky's European origin, to the origins of researchers writing in French, and/or to different socioeconomic realities.

The relative scarcity of French literature on salutogenesis may also be the result of a language bias. No matter where French-speaking researchers live, they may pragmatically choose to publish their work in English. Only a few papers with original results were identified in this review. French literature on salutogenesis is in fact more theoretical than practical. However, and because it leads to the emergence of a new field of research among French-speaking communities (i.e., positive approaches to health), such theoretical contribution is important.

The Evolution of Salutogenesis

Salutogenesis has evolved since its creation. It was established in opposition to pathogenesis to highlight that studies were too oriented toward diseases (or risk factors) rather than to focus on health, resources or capabilities (Antonovsky, 1979). To operationalize this concept, Antonovsky created the salutogenic theory. He explained that stressors were pervasive in life. He stated that under the influence of stressors, people experience tensions. They either fall prey to these tensions or learn to cope with them (Antonovsky, 1987). To cope with tensions, people use GRR. Along the famous health ease–disease continuum (Lindström & Eriksson, 2008), Antonovsky defined salutogenesis as the movement toward the positive pole of this continuum. To capture this movement, Antonovsky created the SOC questionnaires (Antonovsky, 1993). A stronger score to these questionnaires was predictive of this movement (Eriksson, Lindström, & Lilja, 2007). To summarize, GRR are moderators in associations between stressors and SOC (Roy, 2013).

Salutogenesis, however, should mean more than just studying the sense of coherence (Lindström & Eriksson, 2008). Salutogenesis calls also for a focus on resources, skills, capabilities, strengths, and assets at different levels (e.g., people, community, and society; Dumont, Gervais, Fougeyrollas, & Bertrand, 2004; Roy & O'Neill, 2012). Following this thought, Lindström and Eriksson (2008) introduced a salutogenic perspective under a salutogenic umbrella where all theories and/or concepts in relation with positive health were gathered. This evolution from a concept, to a theory, toward an encompassing orientation, brought the conditions to move forward with a new field of research in French-speaking countries.

The Field of Positive Approaches to Health

The field of positive approaches to health, such as salutogenesis, focuses on why some people thrive or stay healthy as opposed to others who get sick. One example of a positive approach to health is to increase resilience (Friedli, 2009). In addition to resilience or salutogenesis, there are many other positive approaches to health, for example, quality of life, cultural and social capital, social participation, self-efficacy, empowerment, connectedness, hardiness, and flourishing (Lindström & Eriksson, 2008). Each of these approaches use different constructs to operationalize their own theory. However, they aim for the same outcome: increased well-being. This emerging field of research has even been named by the *World Health Organization* the "asset-based approach" (Morgan & Ziglio, 2007). Salutogenesis might have contributed to the emergence of this field of research in French-speaking countries. Indeed, many researchers are now shifting from models studying deficiency, disease, and incapacity to alternative models focused on health, human development, and social participation (Fougeyrollas, 1997, 2010; Fougeyrollas et al., 1996).

There are examples of research using positive approaches to health in French-speaking countries, using various approaches to address Antonovsky's question about what creates health.

Promoting older adults' social participation The burden of chronic illnesses places an unsustainable strain on healthcare systems, which is accentuated by aging. To act upstream, a coauthor of this chapter is currently working to implement innovative interventions to optimize older adults' social participation (Levasseur et al., 2015; Levasseur & Couture, 2015). Levasseur's research aims to create an index of social participation potential to guide decisions and optimize environments (Levasseur et al., 2012), to adapt a personalized attendant to community integration, and to increase awareness of older adults with a tool on skills required and compensatory strategies for safe and responsible automobile driving (Levasseur et al., 2015).

Monitoring positive health indicators *Eastern Townships* are a Quebec (Canada) health region with almost 500,000 inhabitants living in urban, semiurban, and rural communities. In 2014, public health authorities of this region conducted a representative population-based survey among 8,737 adults to monitor the physical and mental health of their population. Capitalizing on this opportunity, the first two authors of this chapter, with other colleagues, were able to include positive health measures (i.e., resilience, social participation, and positive mental health) in

this survey. Their objectives were to (1) assess the social and geographic distribution of positive health indicators at a regional scale, (2) examine associations between such measures and various aspects of the environment, (3) estimate the prevalence of such positive health measures at a local scale, and (4) examine the mediating-moderating role of such positive health indicators in associations between negative health and the use of healthcare services. By adding such positive health indicators, this research will help regional public health authorities to strengthen their surveillance system and to tailor their interventions to reduce health inequalities.

Conclusion

In this contribution, we reviewed literature on salutogenesis among French-speaking countries and/or researchers. Our results highlight a relative scarcity of this literature. Nevertheless, our results also reveal a theoretical contribution of salutogenesis to various scientific disciplines, as evidenced by the publications of a number of French-speaking scientists and clinicians in the field of health promotion, health psychology, rehabilitation, and so on. Salutogenesis has moved from an original concept, to a well-established theory, toward a unifying orientation, which finally unlocked a new field of research worldwide (i.e., positive approaches to health). French-speaking countries slowly, but surely, use this road to create health. We think this is an important contribution of Antonovsky's legacy to Francophone health promotion.

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Introduction

Two articles by Aaron Antonovsky published in German have stimulated salutogenesis in a widening circle of health professionals and health activists in Germany. One was published in the Swiss Journal *Meducs* in 1989 (Antonovsky, 1989) and the other appeared in the German *Yearbook of Critical Medicine* (Antonovsky, 1992). The salutogenesis approach is particularly resonant in the medical sub-disciplines of medical sociology and psychosomatic medicine for different reasons.

Medical sociologists and related health activists (the health movement in Germany) have been very much attracted by the salutogenic perspective in contrast to the dominant pathogenesis approach, as an innovative and promising concept of health and inspiration for new approaches in prevention and health promotion (in line with the Ottawa Charter for Health Promotion). The term salutogenesis itself, created by Antonovsky, gained a very attractive and metaphorical function in the debates about new perspectives, sometimes without a clear understanding of the concept as outlined by Antonovsky (1987).

Siegfried Geyer, a German medical sociologist and disciple of the Swiss medical sociologist Johannes Siegrist, formulated influential German ideas about the sense of coherence (Geyer, 1997). His main point was methodological—that it is not very clear if the sense of coherence scale measures what is claimed. Yet in German medical sociology, the attraction of the salutogenic concept of health has been mainly its paradigmatic potential vis-a-vis pathogenesis, and it has not been a significant stimulus to further sociological research.

An emphasis on research has been more evident in the fields of psychosomatic medicine, medical psychology and psychotherapy. Alexa Franke, Professor of Rehabilitation Psychology at the University of Dortmund, published an extended German version of Antonovsky's book *Unravelling the Mystery of Health* (Antonovsky, 1997). In the German title, she used the term 'demystification' as equivalent for 'unravelling'. Franke led several research projects for the further development of the salutogenic concept of health and developed a constitutive health promotion rehab-training programme called HEDE-Training®, a stress-management programme based on Antonovsky's theoretical approach.

A recent online search (Thieme Connect, 21 Oct 2014) resulted in 21 articles published in the last 14 years which were more or less patient-oriented and/or related to coping mechanisms in the contexts of specific diseases, for example prevention and the concept of empirical healing (Erfahrungs-sheilkunde), and self-care and salutogenesis as a model for midwifery.

In the 1990s, *The Federal Centre for Health Education* commissioned a scientific analysis of the state of discussion and the relevance of the salutogenic model of health in Germany. The analysis was conducted by Jürgen Bengel, Regine Strittmatter and Hildegard Willmann from the Psychological Institute of the University of Freiburg, Department of Rehabilitation Psychology. The results have been published German (Bengel et al., 1998) and in English (Bengel et al., 1999). In their summary evaluation the authors conclude:

> *"Antonovsky does not stop at a scientific analysis of health, but goes on to formulate consequences for public health and the health sciences. His concept of the health ease/disease continuum animates the discussion on the concept of disease and health. He makes an appeal for interdisciplinary research on health and disease and reinforces behavioural as well as behaviourally-oriented prevention. He thus stimulates a discussion on the importance of health care and the societal value of health.*

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The construct of the SOC as a dimension of therapeutic and preventive measures has not been established and researched to a sufficient extent. From a scientific view, it is doubtful whether this construct can or will ever assert itself. The interest in the salutogenic model can be explained by the criticism of current research, the criticism of the pure pathological perspective, and the need for a theory of action, especially for health promotion and prevention." (Bengel et al., 1999, p. 87)

In German-speaking countries, in addition to Alexa Franke's German expanded edition of Antonovsky's *Unravelling the Mystery of Health* (*Salutogenese: Zur Entmystifizierung der Gesundheit*), two other volumes were published on the subject in 1997:

- H. Bartsch & J. Bengel (Eds.), *Salutogenesis in Oncology* (*Salutogenese in der Onkologie*)
- F. Lamprecht & R. Johnen (Eds.) '*Salutogenesis—a New Concept in Psychosomatics*?' (*Salutogenese—Ein neues Konzept in der Psychosomatik*?)

In 1998, two additional books followed:

- W. Schüffel et al. (Eds.) *Handbook of Salutogenesis. Concepts and Application* (*Handbuch der Salutogenese. Konzept und Praxis*).
- J. Margraf, J. Siegrist & S. Neumer (Eds.), *Health or Disease Theory*? (*Gesundheits- oder Krankheitstheorie*?).

In the year 2000, a book about the principles, empirical evidence and practice of salutogenesis as a scientific health concept was published (Wydler et al., 2000).

On Wikipedia in the link 'salutogenese' (last accessed 30 Oct 2014), five groups in Germany are listed that are engaged with and focused on different aspect of the salutogenic concept of health:

- The group around Wolfram Schüffel (Professor emeritus and head of the University Hospital of Psychosomatic in Marburg). He initiated 1995 the annual *Wartburggespräche* that resulted in (among other achievements) the *Handbuch der Salutogenese* (Schüffel, 1998). Their particular foci are the connecting links between Balint work (physicians reflecting on their wok and relations with their patients), philosophy and psychoanalysis.
- In the anthropological medicine and pedagogy, there is a group around Michaela Glöckler (Goetheanum, Dornach, Switzerland) and Peter Matthiessen, co-founder of the private University Witten/Herdecke. They try to connect the salutogenic orientation with the anthropological medicine and Waldorf (Rudolf Steiner's humanistic) education.
- Together, the umbrella association *Dachverband Salutogenese* (formerly the Academy for Patient-Centred Medicine) and Ottomar Bahrs (Medicine, Psychology and Sociology at the University of Göttingen; Society of Medical Communication) develop research concepts to explore the salutogenic orientation in general medical practice. The board of the *Dachverband Salutogenese* e.V. (Theodor Dierk Petzold and Ottmar Bahrs) edit the first Journal of Salutogenese *Der Mensch*.
- The Zentrum für Salutogenese has organised the annual Symposium of Salutogenesis since 2005. Coordinated by Theodor Dierk Petzold (general practitioner and lecturer in general medicine at the Medical School in Hannover), the symposium aims to advance salutogenic theory and practice (*Salutogene Kommunikation SalKom*). This has up to now resulted in four thematic edited volumes.
- The Health Academy (GesundheitsAkademie) in Bielefeld around Eberhard Göpel (Professor emeritus and Chairman of *Hochschulen für Gesundheit e.V.*), Alexa Franke (University Dortmund) and Günther Hölling (Patient-Information Centre) have been particularly interested in salutogenic concepts for health promotion, and some summer academies have been organised at the University of Applied Sciences in Magdeburg.

In summary, the salutogenic concept of health have been mainly adopted and adapted in Germany as a disease-oriented medical sector model, shifting from the risk orientation towards a patient/client-centred model that is more focused on health resources and the health potentials of people. Additionally, there have been some efforts, particularly initiated by medical sociologists and health activists, to apply the concept of salutogenesis to health promotion, quality of life and the assets model of health.

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Claudia Meier Magistretti and Sarah Auerbach

Introduction

This chapter focuses on Swiss salutogenesis publications in German. English publications by Swiss-German authors are mentioned but not systematically included in this overview. The identification of relevant research was done using national databases of ongoing or completed research projects (e.g., FORS, ARAMIS, and Swiss National Science Foundation), a project-database held by different Universities of Switzerland (http://www.forschungsportal.ch), as well as publication databases (e.g., PsychInfo and Medline), and several university databases and public libraries (e.g., Swissbib).

Salutogenesis as a Research Field in the German-Speaking Part of Switzerland

Like Swiss health research in general, research on salutogenesis is broad and wide-ranging, and characterized by a lack of coordination and cooperation. Salutogenic research is undertaken at the initiative of individual researchers, and there seem to be no organizational units that focus on salutogenesis. No conferences on salutogenesis or applied research in this field have been held, although some conferences include a salutogenic orientation (GAIMH, 2000; Hochschule Luzern, 2012; White, Schouten, Berg, & Meier Magistretti, 2014). The Swiss National Science Foundation has thus far not funded a national program on salutogenesis, but several research projects addressing salutogenesis have received financial support (Götzmann et al., 2012; Gutzwiller & Wydler, 2005;

Rimann & Udris, 1997). In contrast to other areas of health research (e.g., gender health and occupational health) there is no network for salutogenic research. Instead, several networks on various topics such as wellness or self-healing programs claim to have a salutogenic orientation or refer to Aron Antonovsky's work (not always accurately).

Yet, salutogenesis is indeed of academic interest in German-speaking Switzerland, with the more than 80 publications published over the last years spanning four themes:

- Theory development
- Texts about the application of salutogenesis in public health
- Research having a salutogenic orientation in a general sense
- Research having a salutogenic orientation with a specific focus on the sense of coherence

The first—even though the smallest—group of researchers is involved with salutogenic theory itself, developing salutogenic thinking, integrating new concepts, or adopting salutogenic theory to new fields. Abel and colleagues combined salutogenesis with concepts of Nussbaum and Sen's capability approach (Nussbaum & Sen, 1993) showing how a salutogenic capability approach could contribute to increase equality in health (Abel, Abraham, & Sommerhalder, 2009; Abel & Frohlich, 2012; Abel, Fuhr, & Spörri, 2007; Abel & Schori, 2009). Other authors link salutogenesis to sustainable development (Anliker, 2013) or apply it to practical fields of health promotion and addiction (Wettstein, 2008, 2009, 2014), with the considerable effect that National Policy Papers on health promotion (Mattig, 2014) and migrant health (BAG, 2007) are partly or entirely and explicitly based on salutogenic theory.

The second group of publications consists of entire text books, chapters in text books, and journal articles explaining salutogenic theory to specific groups of professionals in

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Fig. 41.1 Research activities in health fields generally and with an explicit salutogenic focus (based on the schema of Bänziger et al., 2011 and on the research presented in this chapter)

General Health research	Health system research 39%	Research focused on individuals 56%	Methodological research 5%
Health research with an explicit salutogenic orientation	Health system research 0%	Research focused on individuals 92%	Methodological research 8%

public health (Egger & Razum, 2014; Wydler, Kolip, & Abel, 2000; Zeyer, 1997), nursing (Pielot, 2009), midwifery and early life care (Hungerbühler-Räber & Keller-Schuhmacher, 2003; Keller-Schuhmacher, 2004; Meier Magistretti & Luyben, 2012), psychotherapy (Fäh, 2004; Schlegel, 2004), or providing professional tools for salutogenic practice for teachers (Brägger & Posse, 2007; Märki et al., 2005).

A third group represents research projects taking the salutogenic perspective. Their authors refer either generally to Antonovsky's salutogenic model (Fabian, 2012), use salutogenesis as a theoretical framework for their research (Süss et al., 2002).

The last and largest group of researchers uses the sense of coherence scale in projects with a general salutogenic orientation (e.g., Buddeberg-Fischer, Klaghofer, Leuthold, & Buddeberg, 2000; Gutzwiller & Wydler, 2005).

As illustrated in Fig. 41.1, salutogenic research is mostly focused on the health of groups and individuals, as well as some methodological research, but the salutogenic perspective is not yet applied to health system research.

Occupational Health

There has been a clear focus on salutogenesis in the field of occupational health at ETH Zurich—partly in cooperation with the Universities of Zurich and Berne. Starting in the early 1990s with a large research program named SALUTE, Yvan Udris and his colleagues followed the salutogenic approach and Aaron Antonovsky's health theory integrating the tradition of personality and health promoting humane job design with the tradition of salutogenesis (Udris, 1990, 1993, 2006; Udris, Kraft, Muheim, Mussmann, & Rimann, 1992; Udris, Kraft, Muheim, & Mussmann, 1992; Udris, Rimann, & Thalmann, 1994). A Salutogenic Subjective Job-Analysis questionnaire—SALSA—was developed based on qualitative research of factors contributing to the health of healthy workers (Kraft, Udris, Mussmann, & Muheim, 1994; Rimann & Udris, 1997; Udris & Rimann, 1999).

The SALSA questionnaire has been widely used in various contexts of occupational health and health

promotion. Related publications cover a broad range including national survey reports on occupational health (Hämmig et al., 2005), healthy working conditions in universities (Zölch et al., 2005), and health promotion programs of national insurance companies (Udris & Rimann, 1999). The SALSA questionnaire has been adopted by labels for health promoting companies. These labels can be applied for by companies in Switzerland who gain in compensation the title "friendly work space" that allows them an advantage on the labor market as well as an image gain for their companies (Arbeitsgruppe BGM-Kriterien, 2012). SALSA has been adopted also in public administration and in many smaller organizations (e.g., Schwendimann, 2013).

A special issue of the National Journal on Business Psychology (Wehner & Richter, 2006) provided an overview of the SALUTE and of related studies (e.g., Reuter, 2006 on salutogenesis and participation and Semmer, Jacobshagen, & Meier, 2006 on sense of coherence and stress, Bauer & Schmid, 2006 on salutogenic interventions in organizations). A salutogenic orientation in occupational health research has been taken in other contexts, such as teacher's health and well-being (Herzog, 2007), and national surveys on psychological and occupational health (Moreau-Gruet, 2013).

Salutogenic occupational health research experienced a new and strong emphasis through the work of Georg Bauer and his group at the University of Zurich. Although the main volume as well as following publications were published in English (Bauer & Jenny, 2013), his salutogenic approach, focusing on resources and positive outcomes of health-oriented organizational change processes, considerably influenced occupational health research as well as education in the German-speaking part of Switzerland. The group developed a work-related sense of coherence questionnaire (Work-SOC) measuring the perceived comprehensibility, manageability, and meaningfulness of an individual's current work situation on a nine items scale (Vogt, Jenny, & Bauer, 2013; Bauer, Vogt, Inauen, & Jenny, 2015). The concept and the instrument of work sense of coherence are currently applied in a longitudinal study that is systematically testing the different roles of the sense of coherence in the motivational process of the job demands-resources model in a national program for stress prevention and stress management at work (Jenny et al., 2011).

Salutogenesis in Medical Research

Medical research has traditionally been oriented toward pathology and risk avoidance in Switzerland as well as in many other countries. However, there is an ongoing tradition of salutogenic perspectives in medical research, focusing mainly on topics of coping with injuries, trauma, and surgery. At the University Hospital of Zurich, Schnyder and his group conducted a longitudinal study on psychosocial coping with posttraumatic stress disorder in patients experiencing severe injuries. They adopted a general salutogenic orientation and used the sense of coherence scale as an outcome measure (Schnyder 2000). Posttraumatic stress symptoms did not correlate with injury severity but with pretraumatic stressors, the patients' subjective appraisal of the accident, their current coping pattern, and with their sense of coherence. The authors also found that traumatic events such as life-threatening accidents may change a person's sense of coherence, even if psychiatric symptoms abate (Schnyder, Moergeli, Klaghofer, & Buddeberg, 2001; Schnyder, Moergeli, Trentz, Klaghofer, & Buddeberg, 2001; Schnyder, Moergeli, Klaghofer, Sensky, & Buchi, 2003), but that sense of coherence has no predicting value for the development of posttraumatic stress disorders after severe injuries (Hepp, Moergeli, Buchi, Wittmann, & Schnyder, 2005; Wittmann, Moergeli, Martin-Soelch, Znoj, & Schnyder, 2008). The relationship of sense of coherence to the psychosocial effects of health problems was confirmed by the same group of authors in patients with rheumatic rheumatoid arthritis (Schnyder, Büchi, Mörgeli, Sensky, & Klaghofer, 1999). Recently, members of this group focused on the role of the sense of meaningfulness in coping processes with trauma after the 2004 Tsunami (Kraemer, Wittmann, Jenewein, Maier, & Schnyder, 2009).

In parallel, research at the University of Berne used the sense of coherence scale in research on coping strategies and environmental resources in patients adjusting to spinal cord injury (Znoj & Lude, 2002). Also investigating sense of coherence and trauma, but focusing on a healthy population group, Sommer and colleagues concluded to the contrary to Znoj's results that in their sample of Swiss mountain guides, sense of coherence did not predict, but seemed rather to be a marker for psychological health (Sommer & Ehlert, 2004).

The sense of coherence scale has also been used in studies of transplant patients, showing a strong positive correlation of strong sense of coherence with patients' positive attitudes toward their medication, their perceived self, and their fate (Götzmann, 2008). A comparable picture was found with the patients' spouses, except for a negative correlation between the sense of coherence and the attitude toward the transplantation in terms of stress and anxiety (Götzmann et al., 2012).

A study conducted on patients with morbid adiposities undergoing a gastric banding operation showed a weak sense of coherence in patients both with and without an additional psychiatric diagnosis, but no predictive power of the sense of coherence on the quality of life and eating behavior after surgery (Lang, Hauser, Schlump, Klaghofer, & Buddeber, 2000).

In studies on patients with somatoform disorders and on the elderly, the sense of coherence was measured, but no results were reported (Buddeberg, Klaghofer, Nigg, & Steurer, 2001).

A general salutogenic orientation underpinned studies on nonspecific low back pain. Rolli-Salathé & Elfering described these patients' resources regarding life management, working ability, and pain control (Rolli-Salathé & Elfering, 2013) and Tamcan and colleagues developed and tested a 12-item scale based on the three dimensions of the sense of coherence (Tamcan, Bantli, Abel, & Barth, 2010). The scale serves as an assessment tool of patients' resources in clinical practice.

A last branch of salutogenic research in medicine addresses the role of medical doctors, their working conditions, and health. Buddeberg-Fischer, Klaghofer, Abel, and Buddeberg (2006) addressed the question whether the sense of coherence was associated with the specializations young doctors chose. They found that although sense of coherence varies among different medical disciplines, gender is—at least in Switzerland—the decisive determinant for professional careers of young doctors (ibid). A prospective cohort study conducted by the same authors confirmed the stress-buffering effect of a strong sense of coherence among medical students and young doctors in their early professional career (Buddeberg-Fischer et al., 2008, 2009; Buddeberg-Fischer, Stamm, Buddeberg, & Klaghofer, 2009).

Salutogenesis in Research on Health Promotion

Health and health promotion over the life span are among the main areas of health research in German-speaking Switzerland (Meyer, 2009). The practical implications of a general salutogenic orientation have been discussed in terms of Antonovsky's theory for more than 10 years (Hungerbühler-Räber & Keller-Schuhmacher, 2003; Keller-Schumacher, 2004; 2005; Hafen, 2012). Though, in maternity care as well as in early life support and education of children, salutogenesis has just started to be an explicit focus in research (Meier Magistretti & Luyben, 2012). A salutogenic orientation has been fostered in the Swiss public health position paper on early childhood health (Public Health Schweiz, 2012). But research in this area has not gone beyond a general health orientation in the sense that resources and positive health outcomes became research interests.

For school-age children, salutogenic research was more extensive in the 1990s, when the group of Buddeberg-Fischer investigated the associations among body image, sense of coherence and well-being among more than 500 high school students. They found strong correlations between the sense of coherence, well-being, body image, and concerns about eating behavior and bodily self (Buddeberg-Fischer et al., 2001). This research group has also observed a significant influence of high school climate on sense of coherence and other indicators of students' health and well-being (Buddeberg-Fischer, 2000; Buddeberg-Fischer et al., 2000). Bolliger-Salzmann (1997) adopted the sense of coherence scale in a study showing that a school-based health-promoting program reached and benefitted the teenagers most in need—the ones with the weakest sense of coherence.

Later, sense of coherence and selected general resistance resources were used as indicators evaluating the school-based health promotion program entitled "fit and stong" (Jurt & Niewenboom, 2004). Next, Gutzwiller and his group conducted a large retrospective comparative study on 20,000 adolescents. They observed that favorable styles of parental education were associated with stronger adolescent sense of coherence (Gutzwiller & Wydler, 2005; Wydler et al, 2007). In the last few years, the salutogenic orientation in school-based health research has been reduced to a few general statements indicating that research projects should follow a salutogenic view, without explicitly adopting salutogenic theory (Fäh, 2009; Dubowicz et al., 2013).

As described above, salutogenic research on adulthood has been focusing mostly on issues related to work place health and medical studies. Research on the elderly has been selectively undertaken in the past 10 years. There, a similar pattern is noted: a salutogenic view is promulgated (Duetz & Bähler, 2006; Herrmann, 2007; Stamm et al., 2014), but not clearly put into methodological practice. An exception was found in a study of spiritual needs as one dimension of the sense of meaningfulness (Zwinggi et al., 2006). However, the study investigated the professionals' spiritual needs and competences in a home for the elderly and not the needs of the elderly themselves.

Salutogenic Research in Psychiatry and Psychotherapy

A small number of projects with a salutogenic orientation have been published in the area of psychotherapy and psychiatry. A study conducted with children of parents with a psychiatric disorder used the sense of coherence scale as one of several elements to describe identity formation of children in these families (Sollberger et al., 2007). Meister and Haug (2004) used the sense of coherence scale as a control to validate a questionnaire measuring health in schizophrenic patients. Schlegel (2004) described parallels of Antonovsky's sense of meaningfulness and the dimensions of sense and meaning in Jungian psychotherapy. One study included the sense of coherence in a longitudinal study on the effectiveness of systemic psychotherapy in patients suffering from anorexia nervosa and showed that the level of sense of coherence significantly increased over the relatively short time of 19 therapy sessions (Grünwald et al., 2013).

Future Perspective

The number of studies adopting the sense of coherence or other relevant aspects of salutogenic theory was surprising, considering that salutogenesis is virtually nonexistent in both the public academic discussion on health and the basic education of academic staff (outside of the professions very closely linked to the healthcare system). Additionally, there seem to be even more Master and Bachelor's theses related to salutogenic theory than research projects. This suggests that the interest of the coming academic generation in salutogenesis is strong—stronger perhaps than the responses the young researchers might find in the academic system. Switzerland—or at least the German-speaking part of it—would be well advised to foster this interest and to support these rising initiatives by adequate models of networking, mentoring and coaching.

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Adi Mana, Sharón Benheim, and Shifra Sagy

Introduction

Aaron Antonovsky developed the salutogenic model during his years of work in the Israeli medical school at Ben Gurion University of the Negev, located in southern Israel, where he was one of the founders of the Faculty of Health. He left just a few researchers in his wake who continued in his path and paved the way for new research adapted to the diverse "social laboratory" that is the State of Israel. Today his salutogenic paradigm is widely spread over the world and is influential in Israel both in the area of research and in health and educational public policies.

The central salutogenesis work of Israeli researchers has been published in English to make it accessible to the international community who do not read Hebrew. Yet, there is a Hebrew salutogenesis literatureHebrew salutogenesis literature with a diversity of theoretical and empirical applications of the salutogenic model, embedded in the Israeli context and with the unique characteristics of this context.

In this review, we endeavor to encompass all of the work and most of the publications in Hebrew that have used Antonovsky's salutogenic model as a framework. We present the main directions of these studies and emphasize the unique characteristics of the research conducted in Israel.

In order to encompass the full extent of the research conducted in Israel, three databases of publications in Hebrew have been reviewed: The National Library of Israel, The National Institute for Research in the Behavioral Sciences, and The Haifa Key for Articles in Hebrew. From 1983 to 2014, there were 175 titles found that focus on the sense of coherence and the salutogenic model. Of those, 105 were master's theses and 19 were doctoral dissertations. Most of the research was conducted in the framework of the education departments (37 %), social work departments (34 %), and departments of psychology (19 %) of the various universities in Israel. The subjects of these studies were diverse in terms of age: starting with studies on kindergarten age children and continuing through research on senior citizens. Research participants came from many social groups including secular and religious, Arabs and Jews, immigrants from the Former Soviet Union and Ethiopia, and long-term Israeli citizens. Likewise, the research was diverse in terms of the types of life events they were dealing with. Topics have included coping with personal and individual events such as illness, hospitalization, burn out, and retirement, through to topics such as coping with interpersonal interactions, such as parenting and couplehood. Other work has focused on caring for a family member or a patient with special needs, and events at a community or country level such as being part of a problematic neighborhood, being part of a community being evacuated from its location (as part of governmental political decisions), coping with natural disasters, wars, and political violence.

Many of the research studies were conducted as theses and dissertations of graduate students. Some have been published in Israeli journals. Moreover, two volumes of Hebrew journals were dedicated to the salutogenic approach in Israel. The first volume in Megamot ("Trends" edited by Orr, Anson & Sagy, 1998) included the last article by Antonovsky (translated by his son, Avishai). In the foreword to the article, he related to those who continue along his path:

> "Theories, conceptual structures, hypotheses, and ideas are not sacred truths. All these must be related to as to fertilizing agents,

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heuristic starting points. The young researchers of today, looking back, tend to be impatient with what was yesterday exciting and productive for their senior colleagues. They tend to be unaware of the contribution made, to thought and research, and even to the breaking of new ground, by studies that with the passage of time became the basis of innovations, changes, and maybe even to a sharp turn in the field. They tend to minimize the importance of the knowledge that the present is the continuation of the past. With this, there are also those who remain stuck in the past, and find it hard to reconsider the knowledge, to update it, and move forward."

(Antonovsky, 1998, p. 170)

The second edited volume appeared 12 years later in Mifgash—*Journal of Social Educational Work* ("Meeting" edited by Sagy, 2010).

In this chapter, we review research studies which indeed contribute to the reconsideration of current knowledge, to updating the model, and to moving forward. From this review, it becomes clear that the model which Antonovsky developed more than 30 years ago continues to arouse the curiosity of researchers in Israel who are continuing to work within its paradigm, developing, and broadening it.

Reassessment of Knowledge

The salutogenic approach offers a different perspective and alternative assumptions than those of the pathogenic model which is more commonly used in social and health sciences. According to the salutogenic approach, which is similar to a great extent to the Buddhist perception which developed in the East, suffering and wearing down of the body are natural gradual processes in the lifetime of a human and are unavoidable. Humans, as living organisms, are a system with built-in inherent deficiencies along the continuum of "ease–dis-ease" and not on the dichotomous scale of healthy as opposed to ill. Antonovsky (1998) described this as coping with the dangerous river of life. While the pathogenic model focuses on the question "who or what pushed us into the river?" (focusing on identifying the risk factors and how to prevent them and advancing actions that benefit health in order to prevent or stop the illness). Antonovsky assumed that coping with the dangerous river is unavoidable and thus the question to ask is "how dangerous is the river and how good is our ability to swim?" Salutogenesis focuses on identification of the characteristics that allow "swimming in a dangerous river" and of the factors that help one develop and improve "swimming ability."

Generally, many of the research studies conducted in Israel compared between populations who coped with a specific stressful factor and similar populations who did not cope with that stressor. All the research studies used sense of coherence as a main salutogenic resource. The vast majority of the studies examined positive and negative stress outcomes and dealt with reinforcement of sense of coherence as a salutogenic basis.

Most of these research studies reinforced the theory about the relationship between sense of coherence and various measures of health and well-being. For example, a relationship between sense of coherence and adjustment was found among women with physical disabilities (Dangur, 1993), women with breast cancer (Kulik & Kronfeld, 2003), and the social and emotional adjustment of chronically ill adolescents (Goldberg, Gutman, Sehada, & Weissman, 2012). Sense of coherence was found to be related to relationships between sisters where one sister suffered from an eating disorder (Letzer, Katz, & Berger, 2014) and to body image (Letzer, Spivak, & Tzischinsky, 2013), to the development of a sense of leadership among social activists (Levy, Itzhaky, Zanbar, & Schwartz, 2012), to a sense of well-being among Arab and Ethiopian single mothers (Roshke-Lazubar, 1999; Shwartzman, 1999), and to positions such as willingness for placement of a child out of the home among parents (Raif, 1997). Sense of coherence was also observed to be related to youth's attitudes about the use of drugs and alcohol (Elfassi, 2011; Sagy, 2011), to variables such as social acceptableness, worthiness, and hope among students with learning disabilities (Margalit, 2014) and to coping with acculturation stress (Rubinstein, Mirsky, Sharaga, & Slonim-Nevo, 2010).

While the relationship between sense of coherence and variables of health and well-being were measured by various scales and surveyed in the context of many different aspects of the life of the subjects, the measures of negative stress outcomes were based mainly on the pathogenic model which measures psychological distress such as anxiety, stress, tension, depression, anger, and fatigue as well as symptoms of posttraumatic stress syndrome (David, 2010; Drori & Florian, 1998; Erlich, 1997). These differences can be understood by the different characteristics of the pathogenic and salutogenic models. Orr, Anson, and Sagy (1998) emphasized that in the salutogenic approach the dependent variable must be examined as a measure of the experience of the individual on the continuum from poor health to good health. Thus, the determination of what is health is subjectively determined by the researcher, based on what is accepted in his/her holistic social world view and is varied and broad. This decision is substantially different from the determination of what is illness, which is derived from the pathogenic model with its list of defined and commonly accepted negative consequences of stressors. It seems as though thinking in the conceptual framework of the salutogenic model has encouraged researchers to broaden their view of coping and adaptation.

Studies Which Update Knowledge and Move It Forward

From all the interesting studies which have employed the salutogenic model, two branches of research have been chosen for this review, which, in our opinion, have made a significant contribution to updating salutogenic knowledge and moving the field forward. In this chapter, we summarize studies which focus on two distinct main areas: research broadening the concept of sense of coherence from the individual level to wider levels of analysis such as the family and the community or even the national level, and research focusing on sense of coherence amongst children with learning disabilities.

Sense of Coherence on the Personal and Collective Level

As a sociologist, Antonovsky (1998) ascribed great importance to the structural factors and circles of influence on the sense of coherence from the individual level to the group and community levels.

The central question about how such structural resources contribute to the development of SOC has focused on the family system. What are the resources in the family for a strong sense of coherence? Antonovsky and Sagy proposed this question to the Israel Scientific Fund just before he passed away. Sagy and Helen Antonovsky continued this line of research (Sagy & Antonovsky, 1999, 2000) and later other studies were conducted (e.g., Bental, 2001; Bental & Sagy, 2010). These studies (Bental, 2001; Bental & Sagy, 2010; Sagy & Antonovsky, 1998) combined quantitative and qualitative methodologies. Several types of family life experiences, for example, participating in decision making, experience of consistency, emotional bond, balance in emotional load, and sense of belonging were found as resources for developing strong sense of coherence in later life.

Besides the question of collective resources as contributing to SOC, salutogenic research in Israel has also examined the sense of coherence in ever widening circles: relationships between parent and child, relationships between members of a couple, families, communities, and other intergroup relationships. The relationship between the level of an individual's sense of coherence and his/her perception of the family framework has interested many researchers. Strong correlations have been found between level of individual sense of coherence and other variables such as family atmosphere (Navon, Feigin, & Drori, 2001), tensions in parental functioning (Goldberg & Weisman, 2010; Strenger, 1997), and family support (Sarir, 2012; Shwartzman, 1999). These studies confirm the hypothesis that positive family relationships correlate with high levels of coherence among family members and contribute to coping with stress factors.

Another way to study the family level was to develop measures to examine the level of the family sense of coherence as a collective measure. Sourani (1983) and Sagy (1990) developed such family measures of sense of coherence under the supervision of Antonovsky. Sourani (1983) studied a measure among disabled men relating to the spouses separately and asked about their perceptions of their family coherence. She found a correlation between the men's sense of coherence of family life and their spouses' perceptions.

Sagy (1990) studied the family as a social system. She compared four alternative collective measures: the average of sense of coherence of spouses, the highest measure between the spouses (the salutogenic measure), the lowest measure (the pathogenic measure), and the gap between the spouses' SOC. The results indicated that the salutogenic version of family SOC (the highest score among family members) was a better predictor of adaption than the individual sense of coherence (Sagy & Antonovsky, 1998).

The assumption that there is a sense of coherence at the level of the system, which is different than that of the individuals that make up that system, has been examined later in wider social contexts (Sagy, 2014), like neighborhoods or communities (Elfassi, 2011: Peled, 2014; Srour, 2015).

For about 30 years, Sagy and her colleagues and students have tried to explain the relatively high mental health findings of Israeli youth, as compared with youth in the rest of the world. In spite of their living in the shadow of the violent and intractable conflict, uncertainty, and serious social gaps, the indicators of wellness and health are basically high. Based on the salutogenic model, coping resources were studied among youth from different social groups experiencing local and national chronic and acute crises. Examples include life under missile fire (Braun-Lewensohn & Sagy, 2010; Edelman, 2013; Peled, 2014), before and after the evacuation from Yamit in Sinai (Sagy, 1986) and from Gush Katif in the Gaza Strip (Galili & Sagy, 2010; Sagy, 2006), house destruction in the Bedouin unrecognized villages (Al Said, 2015), the second Intifada (Wirtsberger, 1997), the Lebanon war (Benzion, Shahrabani, & Shavit, 2010; Green, Lavi, & Dekel, 2010; Sagy & Braun-Lewensohn, 2014), and more.

Sagy (2014) summarized the findings as follows:

- Most youth in Israel cope well with stress. The level of distress reactions or other reactions like anxiety and anger, change according to the situation, but are moderate over time, as compared to emotional reactions of youth in other parts of the world.

- The levels of their emotional reactions are not related to the level of exposure to the stress factor.
- The personal and family resources of sense of coherence are most important in understanding the reaction to stress, even if the source of stress is at the collective-political level.
- Most of the groups studied in the different Israeli samples displayed a relatively high individual and family sense of coherence.
- Significant differences were found between various populations within Israel with regard to level of sense of coherence. For example, sense of coherence was lower among economically weaker populations (Elfassi, 2011) and secular populations were found to have lower community sense of coherence as compared to religious groups (Galili & Sagy, 2010; Srour, 2015).
- One of the interesting differentiations found in these research studies was the difference between reactions of youth in chronic stress situations, and chronic stress situations with an acute element (Edelman, 2013; Sagy & Braun-Lewensohn, 2014). In the chronic situations, the intensity of the reaction was mostly explained by personal sense of coherence. However, in the chronic situations which had an acute element, the ability of personal factors to explain emotional reactions was weakened. The understanding of reactions in those situations was possible by looking at the collective community reaction (Sagy, 1986). This finding has important practical implications regarding interventions in a variety of situations (Sagy & Braun-Lewensohn, 2014).

Sagy (2014) concludes her summary of these years of research employing salutogenesis with a proposal for a new direction which expands the sense of coherence to the national level. She notes that the Israeli society's strong collective sense of coherence allows the collective in Israel to move toward growth and health despite the stressful Israeli reality. While wondering about the price of the strong national sense of coherence, she asks, "Does the strong national sense of coherence also enable us to hear the narrative of the 'other,' or even to get to know the 'other' or feel empathy toward the 'other's' suffering?" Her question about a possible correlation between strong national sense of coherence and *low* openness toward the "other" (and low readiness to reconcile) breaks ground and broadens the salutogenic model in new research directions which are currently being investigated by doctoral students. Recent survey research (Sagy, Ayalon, and Srour, 2015) indeed confirms this direction.

Students with Learning Disabilities and the Salutogenic Model

The research conducted in Israel that has established a connection between students with learning disabilities and salutogenic variables is an example of the type of research that Antonovsky hoped to promote—research based on the concept of sense of coherence, which contributes systematically to programs and which is intended to strengthen comprehensibility, manageability, and meaningfulness for a particular population (Antonovsky, 1998). While the pathogenic model emphasizes a learning disability's negative impact on learning functioning, Margalit (2014) emphasized the emotional–social–environmental aspect in understanding the importance of promoting developmental processes, and the mental health of students with learning disabilities. In an extensive review article, Margalit (2014) reviewed 15 years of the research on the neurodevelopmental model of learning disabilities. In her review, she focused on the contribution of the integration between different theoretical approaches to understand the difficulties and the challenges that children and adults with learning disabilities have to face. Based on the salutogenic model, Margalit emphasized the need to identify the strengths, the personal, interpersonal and environmental resources instead of focusing on the difficulties and disabilities. She also rejected the dichotomy scale between ability and disability and perceived a more dynamic continuum scale. According to the salutogenic model, the educational purpose is not to "heal" the disabilities but to find the way to strengthen the individual's social and learning adjustment.

In the studies of Margalit and her colleagues, sense of coherence was found to be one of the scarce resources, yet its importance for this population is central. It was found that already by kindergarten age, children at risk of developing learning disabilities reported a lower sense of coherence as compared to their peers (Levin Al-Yagon, 2000). A similar trend was found among children with learning disabilities in elementary school and in adolescence (Margalit, 2000a; Sharabi & Margalit, 2009; Ziv, 2004). Consistent negative correlations were found between sense of coherence and loneliness (Margalit, 1997; Neuberger & Margalit, 1998), and learning helplessness (Margalit, 1983), and positive correlations were found between sense of coherence and hope, self-efficacy, and friendship (Margalit, 2014). These studies point out that learning disabilities influence overall personal development.

Margalit and her colleagues (2014) identified a small group among the population of children with learning disabilities who have succeeded in showing resilience in the emotional and social areas as compared with their

peers. This group of children displayed stubbornness and consistent effort to fight against being different and against the difficulties they faced. That resilience was found to be connected to personal characteristics: higher level of sense of coherence, hope, and extroversion (Margalit & Tur-Kaspa, 1998; Neuberger & Margalit, 1998) and to environmental, family, and educational characteristics such as mothers' and fathers' sense of coherence, family solidarity, and students' perceptions of the teacher as a "secure base."

Intervention programs (Margalit, 2000a; Sharabi & Margalit, 2012) and an important report which was adopted by the Israeli Ministry of Education (Margalit, 2000b) have been based on the idea that children with learning disabilities need to function according to their abilities in the regular school system as much as possible. These ideas emerged from the salutogenic paradigm. It appears that salutogenic thinking in the era of learning disabilities is consistently seeping into research, and from there into the public discourse and educational policies in Israel (Margalit, 2000a).

Conclusion

The violent conflictual reality in Israel, rich in stressful situations, is a fertile and fascinating "social laboratory" for researchers. The repeated findings among Israeli children, adolescents, and adults indicate high levels of sense of coherence and resilience despite the ongoing stressful situation of wars, terror, and violent conflicts (Elran, 2006; Sagy, 2014). What is this "secret" of the Israeli society, which helps it to face the challenges and difficulties?

Exchanging the pathogenic questions about the emotional and physical cost of life in the stormy Israeli reality into salutogenic questions has revealed some solid answers. This review of the salutogenic research in Israel seems to emphasize the resources found in many studies that enable many individuals in Israel to move toward growth and health in spite of this difficult reality, and maybe even because of it. Perhaps, it is mainly the strong meaningfulness and the feelings of comprehensibility and manageability that strengthen the durability and adaptive ability of people living in conflict areas. However, the picture is not complete without relating to the cost of this strong sense of coherence and high resilience measures. In order to cope with the results of living in a prolonged violent reality, a psychological repertoire evolves (Bar Tal, 2007). Thus, another direction of salutogenic research has recently been advanced in the conflictual Israeli reality which leads to the study of national sense of coherence in relation to openness toward the "other" and readiness to reconcile (Sagy, 2014; Sagy, Ayalon, & Srour, 2015).

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Introduction

SalutogenicJapanese salutogenic studies research in Japan dates back to 1996. It was first introduced by Yoshihiko Yamazaki, a Japanese sociologist, and his colleagues via Aaron Antonovsky's seminal books, *Health*, *Stress*, *and Coping* and *Unraveling the Mystery of Health*. These scholars subsequently initiated a study group (still continuing), focusing on salutogenesis and the sense of coherence. *Unraveling the Mystery of Health* was translated into Japanese by members of the study group and published in 2001. The following year, Yamazaki and his colleagues also translated the sense of coherence scale into Japanese, which led to the initiation of empirical research. Moreover, the publication of *Introduction to the Sense of Coherence in the Salutogenic Model* (Yamazaki, Togari, & Sakano, 2008) and *Sense of Coherence in Adolescence* (Yamazaki, & Togari, 2011) within the Japanese academy has disseminated this research across various academic disciplines.

In this chapter, we identify and compile Japanese salutogenic studies, especially those that include the sense of coherence, identified in the databases of Japan Medical Abstracts and the National Institute of Informatics. We focus on publicly funded Japanese empirical research and research projects. We also review and present representative Japanese research papers.

Original Japanese articles that included the keyword sense of coherence, or SOC and related terms soared from around 2003, with about 300 papers having been published since this date. A keyword search ("sense of coherence & Article") using Ichushi-Web, an exhaustive Japanese biomedical literature search engine, yielded 284 Japanese studies. The number of citations in the database has increased, annually, by more than 300,000, and now exceeds eight million citations.

Additionally, 31 articles were identified through a search for the keyword "sense of coherence & Japan* & Article" in the Web of Science. Of these, eight overlapping articles and four articles focusing on Japanese living in the United States were excluded. Thus, we included a total of 303 papers published between June 2007 and June 2014 in our analysis. An examination of original papers published since 1998, according to the translated Japanese version of the sense of coherence scale, shows an annual increase in the number of publications since 2000. In particular, 30–50 papers have been published each consecutive year during the past 5 years.

About half of the studies (161 or 53.1 %) used sense of coherence as an independent variable. A total of 51 studies (16.8 %) used sense of coherence as the dependent variable, and 57 (18.8 %) examined the correlation between sense of coherence and psychological variables. Sense of coherence intervention studies commenced from around 2010, with a total count of nine studies (3 %).

Regarding study design, cross-sectional studies account for the majority of studies (232 or 76.2 %); there are 34 - follow-up studies (11.2 %), and 23 qualitative studies (7.6 %). In recent years, the number of follow-up studies has shown an increase.

Regarding the participants (participants) in sense of coherence studies, 179 studies (59.1 %) focused on adults, 89 studies (29.4 %) examined students, 28 studies (9.2 %) focused on the elderly, and three studies (1.0 %) examined children. Among the studies focused on adults, the emphases were as follows: 23 studies (12.8 %) on general residents,

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80 studies on workers (44.4 %), and 52 studies on patients (28.9 %). Over the last 3 years, college and nursing students have accounted for 30–40 % of research participants.

Research Funded by Grants-in-Aid for Scientific Research and Doctoral Theses

Grants-in-aid for scientific research (KAKENHI) are awarded in Japan to promote creative and pioneering research across a wide spectrum of scientific fields, ranging from the humanities and social sciences to the natural sciences. These KAKENHI grants are awarded to individual researchers or research groups at Japanese universities or research institutes engaged in basic research. As of 2014, 21 research projects that thematically included salutogenesis or sense of coherence obtained KAKENHI awards. Furthermore, 110 proposals included a component on salutogenesis or sense of coherence. The areas of investigation were nursing, public health, health sciences, psychology, social welfare, sociology, pedagogy, economics, engineering, agriculture, and other fields (see Table 43.1).

There were 16 doctoral theses in Japan's National Diet Library that thematically included salutogenesis and/or sense of coherence. Areas of investigations were medicine, health science, psychology, and economics.

The Japanese Version of Sense of Coherence Scale

The 29-item Japanese version of the sense of coherence scale was translated and made available by The University of Tokyo Antonovsky Study Group in 1998 (Yamazaki

Table 43.1 Areas of investigation incorporating salutogenic or sense of coherence research in Japan (1995–2014)

Areas	n	(%)
Nursing science	40	(36.4)
Public health	17	(15.5)
Health science	15	(13.6)
Psychology	14	(12.7)
Social welfare	7	(6.4)
Sociology	6	(5.5)
Sports science	3	(2.7)
Pedagogy	2	(1.8)
Nutritional science	1	(0.9)
Agriculture	1	(0.9)
Economics	1	(0.9)
Engineering	1	(0.9)
Psychiatry	1	(0.9)
Religious studies	1	(0.9)
Total	110	(100.0)

1999). A shortened version with 13 items was subsequently explored for its construct validity (Togari, Yamazaki, Nakayama, Takayama, & Yamaki, 2008). In developing the 13-item version, a follow-up survey was conducted after 2 years with 407 college students in Tokyo, and the stability of a secondary three-factor structure was considered for predicting physical, mental, and psychosocial well-being. The stability of this factor structure was verified (stability coefficient = 0.72). An examination of the reliability and factor validity of a five-point version of the 13-item sense of coherence scale was also performed (Togari & Yamazaki, 2005). Item analysis, reliability analysis, and factor validity through confirmatory factor analysis were performed. Reliability (Cronbach's alpha = 0.82) and the secondary three-factor model were subsequently verified.

Moreover a 13-item, five-point sense of coherence scale was developed for children (Sakano, Togari, Yamazaki, Yajima, Kobayashi, & Ishibashi, 2009). This revised version, appropriate for Japanese elementary students, was based on the original sense of coherence 13-item scale and on previous versions developed for use with European adolescents (Torsheim, Aaroe, & Wold, 2001).

Simultaneously, SOC3-UTHS, a three-item, seven-point version of the SOC3 scale, developed by The University of Tokyo Department of Health Sociology, was applied in an extensive multipurpose general population survey (Togari, Yamazaki, Nakayama, & Shimizu, 2007). The reason for this was that whereas many researchers wish to measure sense of coherence within surveys, a 13-item sense of coherence scale cannot always be inserted into questionnaires because of the large space requirement.

Although the Japanese version of Lundberg's three-item sense of coherence scale (Lundberg & Nystrom, 1995) was applied, there were considerable difficulties translating it into Japanese. Therefore, a new three-item version of the sense of coherence scale was developed based on the conceptual definition of sense of coherence. Consequently, Cronbach's alpha coefficients were around 0.90, and the correlation coefficients between SOC3-UTHS and the sense of coherence 13-item scale were about 0.5–0.6. The SOC3-UTHS items are:

- I am able to find solutions to various problems and hardships that I face in my daily life (manageability)
- I am able to find value in confronting various hardships and problems that I face in my life (meaningfulness)
- I am able to understand and predict various hardships and problems that come up in my life (comprehensibility)

Until now, the 13-item, seven-point version of the sense of coherence scale has been predominant in Japan. A 13-item five-point version is also frequently applied in

research on adolescents and the elderly. The three-item version has been more widely used in multipurpose survey research.

Empirical Studies in Japan

Here, we provide very brief synopses of research projects to aid the reader in identifying particular Japanese researchers' interests and key publications. The authors of this chapter are willing and eager to facilitate contact with Japanese researchers.

Takayama et al. (1999) examined sense of coherence stability and its buffering effect on psychological health in dealing with stressful life events. The participants were 200 adults randomly selected in Tokyo, and a follow-up survey was conducted 1 year after the first survey. The mean sense of coherence at follow-up in 1998 was 131.1 ± 23.9, which was significantly lower than that at baseline. The results showed that sense of coherence was positively related to psychological health, but demonstrated a buffering effect in dealing with stressful life events only among men.

Tsuno and Yamazaki (2012) investigated associations among coping resources, sense of coherence, and health status by undertaking a comparison of urban and rural residents. A total of 2000 general residents aged 30–69 years in two areas were targeted. Sense of coherence was found to be significantly associated with mental health in both areas. Mental health was significantly associated with physical activity limitations and life stressors in both areas. However, the associations weakened when social and psychological resources and sense of coherence were added. This demonstrated their buffering effect on the negative influences of life stressors on health.

Kondo (2007) focused on an elderly population in a community to examine the relationship between person low sense of coherence-to-person high sense of coherence and depression and stressful life events. The greater the number of stressful life events, the more people suffered from a state of depression, with significant increases in the low sense of coherence group among both men and women. These findings demonstrated the buffering effect of sense of coherence.

Matsushita et al. (2010) examined the association of sense of coherence and QOL among 260 pregnant women. This was measured six times in total during pregnancy and up to postdelivery. The average sense of coherence score of pregnant women tended to be higher than the score of the general population of women. There was no significant difference between the scores of women in early and late pregnancy. Sense of coherence was found to be high from the beginning of pregnancy. A significant correlation was

observed between the QOL and sense of coherence. QOL showed a significant correlation between number of weeks of pregnancy and the time of pregnancies.

Togari (2012) collected longitudinal data obtained over 4 years from a Japanese life course survey. It aimed to investigate the following hypotheses regarding causal relationships: psychosocial work characteristics affect mental health, and sense of coherence mediates causal relations. Men living in Japan between the ages of 20 and 40 years were selected as participants. In this study, 1006 working males in each research location were recruited. The model of the mediated effect of sense of coherence on the causal relationship of the effect of psychosocial work characteristics on mental health was accepted. However, the direct causal relation between work characteristics and mental health was not significant. These results support Antonovsky's salutogenic model.

Urakawa and Yokoyama (2009) examined whether sense of coherence could reduce the adverse effects of job stress on mental health status. Self-administered questionnaires were distributed among 740 workers in a manufacturing industry. The study found that mental health status was adversely related to job demands, but positively associated with sense of coherence among both males and females.

Morita, Inoue, Konno, Ohta, and Yamato (2013) examined the degree of association of sense of coherence and job stressors with depression. A total of 185 workers completed the questionnaires. The impact of sense of coherence on depression was found to be greater than that of job strain. Sense of coherence may play an important role in the stress management of computer software workers.

To clarify a possible association of sense of coherence with stress reactions and related factors, Yoshida, Yamada, Shibataki, and Morioka (2013) surveyed 463 female nurses in a Japanese hospital. The results showed that sense of coherence had a significant association with stress reactions, along with quantitative overload, one of the factors related to stress reactions and age. It follows that sense of coherence could be an independent factor in decreasing the stress reactions of nurses.

Togari and Yamazaki (2009) focused on the identification of socioeconomic disparities in sense of coherence, including education, type of occupation and employment, and income in a representative survey sample of Japanese residents aged from 20 to 40 years. Unemployment was associated with the lowest sense of coherence in all socioeconomic groups. Sense of coherence declined with lower academic backgrounds. Also, those in the low income category had significantly lower sense of coherence. In multivariate analyses adjusted for academic background and occupation, a significant relationship was found in the female sample; however, no relationship was found between income and sense of coherence in the male sample.

Kimura et al. (2001) investigated factors related to sense of coherence among 593 university students in Tokyo. Those with a high level of sense of coherence tended to have a strong sense of responsibility. They reported an extensive social support network and a supportive family environment during childhood, and positive experiences at junior and senior high school.

Togari et al. (2009) examined relationships between past and present school experiences and changing sense of coherence patterns during a 10-month period among 1539 urban Japanese high school students. The direct determinants of sustained high sense of coherence scores were found to be participation in school club activities, not being bullied in elementary school, excellence in sports, art, and school work, and relationships with friends in senior high school. The direct determinants of ascending sense of coherence scores were active participation in school club activities, managing relationships with friends, and having a certain number of friends in senior high school. The results were basically supportive of Antonovsky's hypotheses. Successful coping experiences and negative experiences, such as getting bullied, were determinants of sense of coherence scores.

Tsuno and Yamazaki (2007) examined whether the living environment influenced the pattern of correlations of sense of coherence with generalized resistance resources. Sense of coherence was found to be correlated with economic status among urban but not rural residents. Further, in rural areas alone, sense of coherence was found to be correlated with trends toward stable settlement, ties with relatives, and sense of humor. Urban residents in general showed significantly higher sense of coherence scores than rural residents. This may be because of higher levels of social support, self-efficacy, and higher economic status of urban residents.

Kanamori, Kai, Ishiyama, and Arao (2013) focused on middle-aged community-dwelling adults to examine the relationship between social participation and sense of coherence. Among women but not men, sense of coherence tended to be higher among those participating in more social groups.

In a large-scale cross-sectional study of 20,742 Japanese white-collar workers, Tomotsune et al. (2009) observed that stronger sense of coherence enabled a worker to adopt a problem-focused coping profile that facilitated better coping with work-related stressors.

Nakamura et al. (2001) investigated sense of coherence and natural killer cell activity (NKCA). In 125 men engaged in office work, sense of coherence and smoking were significantly correlated to NKCA as well as CD57+ T-lymphocyte expression and CD16+ monocytes, independently of other psychosocial variables. Thus, sense of coherence may be an important psychological modifier in determining the relationship between cellular immunity and smoking cessation.

Maruyama and Eto (2010) investigated the present conditions of people with physical disabilities living in less populated areas. The study participants were 88 individuals with disabilities. Sense of coherence had a negative correlation with life stressors. Sense of coherence was related positively to healthy behaviors, better subjective health, and higher self-efficacy.

Matsushita and Sato (2010) aimed to clarify the relationship between sense of coherence and smoking and drinking status in 149 inpatients of an acute psychiatric unit. Age and the degree of nicotine dependence were significant predictors of sense of coherence scores.

Matsushita, Ito, and Arai (2007) administered a questionnaire to 85 alcoholics to assess smoking history and level of awareness about smoking, nicotine dependence, and sense of coherence. The average sense of coherence score for males was 51, lower than that of the general Japanese population. The later the age at which an individual began smoking, the lower the nicotine dependence score. The higher the nicotine dependence score, the lower the individual's sense of coherence score.

Haoka et al. (2011) investigated changes in stress-coping abilities during a return to work (RTW) program. The study participants were 20 participants in an RTW program initiated within a hospital. The sense of coherence score at the end of the RTW program was significantly higher compared with the score at the time of enrollment. The study revealed that the stress-coping ability of employees on medical leave due to depressive disorder became stronger during participation in the group RTW program.

Ooi et al. (2010) measured the sense of coherence and stress coping abilities of 58 participants at the start and conclusion of a walking campaign and observed no significant change in level of sense of coherence.

Nakamura et al. (2006) aimed to apply sense of coherence in developing a mental health program for employees and to examine its effects. A total of 40 male participants between the ages of 50 and 69 years old, who were mentally unhealthy, were targeted for the health education program. The program's main significant effects were on mental health, sense of coherence, diastolic blood pressure, total cholesterol, exercise, and drinking and smoking.

Yamazaki et al. (2008) assessed psychosocial needs of persons with medically transmitted HIV and observed that sense of coherence scores were significantly higher in those subjectively experiencing good health and having no bleeding. No significant association was found between sense of coherence and AIDS development or CD4 cell counts. Sense of coherence scores was significantly higher for individuals who worked, had children or spouses, or economic security. It was also significantly higher for those who self-regulated their lives, whose actions were minimally driven by anxiety, who had an

emotional support network, and who experienced fun in their lives.

Omiya, Ito, and Yamazaki (2012) used interview data collected from 19 participants to study the sense of coherence among people with a cleft lip and cleft palate (CLCP). Knowing about and understanding CLCP seemingly enabled individuals to acquire sense of coherence in their lives, which may be related to gaining a feeling of control over their cleft condition, acquiring a sense of autonomy, and finding meaning in their lives.

Conclusion

Almost all of the studies presented in this chapter focused on the study of the sense of coherence; research studies that focus on other aspects of the salutogenesis model, and/or the broad salutogenic paradigm, are extremely limited in number. Even if most of the Japanese research is on the sense of coherence, and is descriptive, intervention research aimed at increasing the sense of coherence is also evident, and seems to be on the rise.

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Introduction

Salutogenesis emerged as a term and a topic in the Norwegian language literature in the late 1990s. One of the first mentions of salutogenesis was, maybe surprisingly, within the field of medicine. Malterud and Hollnagel (1997) took up the concept in a paper advocating a reorientation from risk to resources for general practitioners. Soon after, Grøholt, Sommerschild, and Gjærum (1998) introduced salutogenesis in a book on coping with a focus on professionals' meetings with children, youth, and parents. Over the years that have followed, salutogenesis has been addressed to an increasing degree, suggesting that the perspective is gaining ground in Norwegian research. The number of publications identified from 2011 to 2012 alone is higher than the entire production between 1997 and 2010.

The literature can be sorted according to at least two criteria, the first being publication format and the second being the centrality of salutogenesis in the publication. The reference list at the end of this chapter includes publications of all types, regardless of how they would be classified according these two criteria. However, for inclusion in the text part of this chapter, we restrict the focus to publications that mention the word salutogenesis more than merely in the passing, in various ways dedicating more room to salutogenic thinking. These publications mention important concepts from the salutogenic model of health, such as generalized resistance resources and the sense of coherence. Still, the centrality of salutogenesis in these publications varies. When it comes to format, research articles, books, and book chapters are of clear interest, but quality publications of other formats (reports and similar) are also included to provide the reader with a good overview. Master's theses are not included.

The literature search was conducted using the Norwegian search engine Oria for publications in Norwegian academic libraries, CRISTIN (Current Research Information System in Norway), and NORA (Norwegian Open Research Archives). The Nordic databases Norart, Idunn, and SveMed+, and the international databases PubMed, EMBASE, CINAHL, and Web of Science, were searched. In all these resources, the truncated term salutogen* was used, with Norwegian language as the only limitation. In the following, we give a very brief overview of the Norwegian language literature that takes a salutogenic perspective. The space limitations of this chapter makes it impossible to do justice to the material in the publications; however, our aim is to give the reader a chance to identify publications of interest that can be accessed for more thorough study.

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Health Professions

A series of publications have argued for the salutogenic perspective within various health-related professions. Within the medical profession, Malterud has been a leading figure in advocating for the perspective in general practice (Malterud, 2001; Malterud & Hollnagel, 1997; Walseth & Malterud, 2004), whereas Tellnes (2007, 2008) discusses the

salutogenic perspective in relation to social medicine and public health.

Within the nursing profession, an edited book from 2012 includes two chapters which are relevant in this context. Gammersvik (2012) includes the perspective in a chapter on health promotion in nursing, whereas Larsen (2012) takes a salutogenic perspective in a chapter on the health concept in health promotion. In journal articles, Langeland (2012a) explores the role of salutogenesis in nursing, and Haddeland and Söderhamn (2013) focus on the experiences of nursing students. In 2014, a new book on health promotion in municipality health services was launched (Haugan & Rannestad, 2014) with a number of chapters where salutogenesis is the main theoretical departure point.

Other professional perspectives within the health-related fields are presented in Simensen (2013) writing about environmental therapy, whereas Johannesen and colleagues focus on advisory work mostly related to children and adolescents (Johannessen, Kokkersvold, & Vedeler, 2010).

Patient Groups

Salutogenic literature related to particular patient groups has mostly been focused around mental health, much through the work of Langeland (2000) and Langeland & Vårdal (2014). Gonzalez (2013) writes about the use of gardening for individuals with clinical depression, whereas Varre, Slettebö, and Ruland (2011) describe coping as experienced by cancer patients. Heggdal (2008) focuses on patients, generally, seeing the patient as the expert of own health-promoting processes through 'the creation of body knowledge' (kroppskunnskaping).

Occupational Health

One part of the Norwegian language literature focus on salutogenic work life, with a particular focus on job presence as opposed to job absenteeism. With an empirical approach using qualitative methods, one paper explores the role of sense of coherence in relation to job presence for employees with musculoskeletal health complaints (Geving, Torp, Hagen, & Vinje, 2011), whereas Vinje and Ausland (2013) focus on the health-promoting effects of salutogenic presence at work. Vinje and Ausland also present this topic in four web-based publications focusing on seniors in work life (Ausland & Vinje, 2012a, 2012b; Vinje & Ausland, 2012a, 2012b).

Population Groups

A few population groups have received particular attention. Flatval and Malterud (2009) and Bjørkman (2012) write about health-promoting experiences and coping strategies of lesbians. Øien et al. (2009) write about coping and health-related quality of life among adolescents in senior high school. Also, the elderly receive some focus: Narum and Bergland (2009) write about quality of life and experiences of flow as described by elderly ladies, whereas Jaastad (2011) writes about the salutogenic impact of culture for the elderly. Højdahl (2013) focuses on criminal ward, describing a therapeutic conversation approach to coping and behavior change.

Other Topic Areas

Self-help and self-help groups are the focus in Hedlund and Landstad (2011), relating the topic to health policies, empowerment, and positive health. As previously mentioned, Langeland (2000, 2011) includes a focus on salutogenic groups in mental health care. Moving from disempowerment to empowerment related to reporting of sexual abuse is the focus of a doctoral dissertation (Vea, 2012), whereas project organization related to children is the focus of Midkiff (2012). Reports from the Norwegian University of Science and Technology promote best practice in public health in municipalities in Trøndelag county with foci on alcohol abuse (Lillefjell, Oldervoll, Jakobsen, Thoen, & Krokstad, 2011) and health and quality of life (Lillefjell, Maass, & Espnes, 2013). Sletteland and Donovan (2012) focus on salutogenesis in relation to health-promoting local communities. Just before the end of the editing of this book, a Norwegian version of the Hitchhiker's Guide to Salutogenesis was published (Erikssson & Lindström, 2015).

Final Comments

Which approach does the literature mainly take? Only a limited number of papers take an empirical quantitative approach measuring the sense of coherence (e.g., Gonzalez, 2013; Langeland, 2009; Lillefjell et al., 2013; Øien et al., 2009). More publications take a qualitative empirical approach (e.g., Flatval & Malterud, 2009; Geving et al., 2011; Hedlund & Landstad, 2011; Højdahl, 2013; Narum & Bergland, 2009; Varre et al., 2011; Vinje & Ausland, 2013). However, the overwhelming majority of the papers

seem to apply salutogenesis in a conceptual way, laying out the salutogenic model and relating it to various professions and activities as a theoretical perspective.

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Eleonora Bielawska-Batorowicz and Bohdan Dudek

Introduction

It is not easy to point to the exact moment in time when Polish academicsPoland and practitioners got acquainted with the theory of salutogenesis. It is quite likely that it was during one of the international conferences of psychology or during the bilateral research meetings in the 1980s. Since that moment, the theory of salutogenesis and its core concept—sense of coherence—started their journey through academic textbooks, journal articles, and conference presentations, and became recognized as important theoretical inputs, mostly in health psychology and studies on stress and coping.

Professor Aaron Antonovsky visited Poland in 1993 upon the invitation from the Institute of Occupational Medicine in Łódź, and many Polish academics and practitioners got a chance to discuss with him personally his theoretical concepts and their application in research and practice. Antonovsky encouraged the preparation and publication of the Polish edition of his book *Unraveling the Mystery of Health. How People Manage Stress and Stay Well*, that was finally published in 1995 under the title *Rozwikłanie tajemnicy zdrowia. Jak sobie radzić ze stresem i nie zachorować*.

Unfortunately, it was too late for Antonovsky to write his planned preface to this edition of the book. In 1997, the Institute of Psychiatry and Neurology, in cooperation with the University of Warsaw and the Polish Section of the European Health Psychology Society, organized the *International Conference on Sense of Coherence, Coping, and Health* that attracted participants from several European countries and several Polish scientific centers. The selected papers from that conference were published in English in the special issue of the *Polish Psychological Bulletin* in 1999. Salutogenesis and sense of coherence were also major topics of scientific symposia during national conferences. One good example is the session *Poczucie koherencji— uwarunkowania, korelaty, związki ze zdrowiem* (Sense of coherence—determinants, correlates, relations to health) organized in 2005 during the XXXII Congress of the Polish Psychological Association.

To identify the works by Polish authors who use salutogenesis and sense of coherence as their theoretical framework, a literature search was conducted using a national database (Bazy Biblioteki Narodowej) and international databases (Academic Search Complete, MEDLINE, SCOPUS, CEJSH). The terms "salutogenesis" and "sense of coherence" were used as keywords with Polish language as the only limitation for the searches. The publications identified are presented in this chapter. Master's theses and doctoral dissertations are not included as most of them are unpublished.

Salutogenesis and Sense of Coherence in Textbooks

The analysis of contents of academic textbooks indicates that salutogenesis is discussed quite extensively, and the most typical context in which it is introduced is health, stress, and coping. The recent book edited by Strelau and Doliński (2008) is the good example. In more specialized textbooks, such as those on clinical or health psychology, salutogenesis is discussed in more detail. In clinical psychology textbooks, salutogenesis with its general question related to the origins of health, is introduced in contrast to theories that aim to explain the origins of disease and/or mental health problems (Sęk, 2001, 2005). Such contrast helps to explain the importance of the "change of paradigm" (Piotrowicz & Cianciara, 2011; Sęk, 2005, p. 44). Although proposed as the new approach to health, salutogenesis was

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also analyzed from the perspective of its possible integration with theories of pathology (Cierpiałkowska & Sęk, 2006).

In health psychology textbooks, salutogenesis and sense of coherence are presented as the framework for studies on health and its determinants (Heszen & Sęk, 2007). Polish textbooks conclude that the theory of salutogenesis has received sound empirical support, while calling for more research on the development and deterioration of the sense of coherence (Heszen & Sęk, 2007). In a recent textbook on stress, the sense of coherence is presented in the context of personal resources that affect coping (Heszen, 2013).

Salutogenesis and Sense of Coherence in Research

While salutogenesis is in focus in Polish theoretical analyses, research studies more often concentrate on its core concept—the sense of coherence. The relationship of the sense of coherence to health has been studied extensively. One example is the book edited by Sęk and Pasikowski (2001) with a selection of studies on the sense of coherence related to physical and mental health. Contributions to this book indicate that the sense of coherence has been analyzed in a variety of health contexts and considered either a predictor or a correlate of better adaptation to a disease and its treatment.

The salutogenic approach has been applied to the study of mental health and sense of coherence in patients with a variety of mental problems, such as depression (Mroziak, Czabała, & Wójtowicz, 1997; Zboralski, Florkowski, & Gałecki, 2006), postnatal depression (Kroemeke & Mateusiak, 2006), schizophrenia (Badura-Brzoza et al., 2012), bipolar disorder (Sariusz-Skąpska, Czabała, Dudek, & Zięba, 2003), panic and anxiety disorders (Kurowska & Ciesielska, 2013; Potoczek, 2010), suicide attempt (Polewka et al., 2001), and alcohol addiction (Badura, Gorczyca, Tomalczyk, & Matysiakiewicz, 2000; Piegza et al., 2005). Such studies were mostly cross-sectional and the sense of coherence scores for patient groups were compared with healthy controls. The longitudinal approach has been applied when the effects of psychotherapy have been analyzed; increases in sense of coherence scores were observed in the follow-up of treated neurotic (Szymona, 2005) and alcohol-dependent patients (Mroziak, 2002). Sense of coherence was found to promote posttraumatic growth in children and adolescents after their placement in children's home (Ogińska-Bulik, 2013).

Somatic diseases have been analyzed in the salutogenic perspective as well, with the sense of coherence usually conceptualized as the factor that improved adjustment to a disease or affected health-related quality of life. Such studies were conducted in arterial hypertension (Kurowska & Dąbrowska, 2008; Kurowska & Prus, 2010), other heart diseases (Kurowska 2009b), cancer (Kurowska & Bartoszek, 2008; Kurowska, Dahms, Głowacka, & Haor, 2010), asthma (Potoczek, 2011; Potoczek, Niżankowska-Mogilnicka, Bochenek, & Szczeklik, 2006), rheumatic diseases (Kurowska et al., 2009c), dermatologic problems (Ogłodek et al., 2009; Zboralski, Gernand, Orzechowska, & Talarowska, 2010), type 2 diabetes (Kurowska et al., 2009a), hearing impairment (Kurowska & Wieczór-Klein, 2011), physical disability (Fidler, 2008), and transsexualism (Cysarz, Piwowarczyk, Czernikiewicz, Dulko, & Kokoszka, 2008). Patients who underwent surgery benefited from higher sense of coherence, for example better adaptation after hysterectomy (Jawor, Dimler, Kuleta, & Dudek, 2002) and after hip replacement (Badura-Brzoza et al., 2008).

The salutogenic perspective has also been applied in the analysis of adaptation to health problems within families (Bażyńska, Bronowska, Namysłowska, & Żechowski, 2002; Kasperek-Zimowska & Chądzyńska, 2011; Osuchowska-Kościjańska et al., 2014). Sense of coherence has also been considered within the context of care, especially for terminally ill cancer patients (Kurowska & Piechowska, 2008), children with developmental disabilities, such as cerebral palsy (Dąbrowska, 2007) and Down's syndrome (Bobkowicz-Lewartowska, 2013). Such studies observed differences in coping styles related to high/low sense of coherence, and a relationship between sense of coherence and life satisfaction.

Some authors have advocated for salutogenic approach to be used within medical professions, to increase doctors' capabilities, develop understanding of patients' health behavior and improve doctor–patient communication (Zboralski et al., 2008). Others used this approach to discuss the risk of burnout among doctors (Świderski et al., 1999), motivation for voluntary work in hospices (Szulc & Parchem, 2014), and the experiences of medical students (Szymczak, 2005).

Studies that analyzed the effect of the sense of coherence on stress and coping were conducted with young and adult participants alike, and confirmed a link between high sense of coherence and task-oriented coping (Kosinska-Dec & Jelonkiewicz, 1997; Kurowska et al., 2009a, 2009b, 2009c; Kurowska & Zachulska, 2013). Findings indicated as well that persons with a high sense of coherence more often use contact-seeking than distraction coping (Jelonkiewicz & Kosińska-Dec, 2001). Gender effects have been observed i.e., women report lower sense of coherence, and for women but not for men, a particular coping style (contact-seeking) affected the sense of coherence in prospective analyses (Jelonkiewicz & Kosińska-Dec, 2001).

The concept of the sense of coherence has been applied to analyses of occupational stress, including the perception of job stressors and emotions experienced in workplaces, most often those of police and military forces, firefighters, and paramedics (Ogińska-Bulik, 2003). For example, sense of coherence affected coping with stress among officers (Piórowski, 2008) and the intensity of PTSD after traumatic experiences related to professional activity (Dudek, 2003).

Teachers are another professional group included in studies on the role of the sense of coherence at work. The same pattern was found—sense of coherence was protective against job stress (Zubrzycka-Maciag, 2013) and professional burnout (Świętochowski, 2004).

The demographic situation in Poland has stimulated the growing interest of the role of sense of coherence in healthy aging, with some research observing a significant relationship between the sense of coherence and life satisfaction of the elderly (Pasik, 2007; Kurowska, Rudewicz, Głowacka, & Felsmann, 2008; Zielińska-Więczkowska, Ciemnoczołowski, & Kędziora-Kornatowska, 2009).

Finally and quite compellingly, the salutogenic approach has also been used in analyses of consequences of political persecution (Czaja, 2001) and adaptation to political transformation (Pasikowski & Sęk, 2004).

Measures of Sense of Coherence

The measure of sense of coherence—Antonovsky's Orientation to Life Questionnaire (SOC-29)—was adapted in Poland in 1993 as a joint effort of three research centers: the Institute of Psychiatry and Neurology (Warsaw), the Institute of Psychology at Adam Mickiewicz University (Poznań), and the Institute of Occupational Medicine in Łódź (Koniarek, Dudek, & Makowska, 1993). Another questionnaire that measures the sense of coherence—SOC-13—was also adapted and used in studies with young persons (Zwoliński, 2001).

Final Comments

Publications in the Polish language, reviewed in this chapter, are either theoretical analyses or research reports. In the former case salutogenesis is applied in a conceptual way, discussed in a variety of contexts, and related to other theoretical concepts. In research, the quantitative empirical approach is used and the sense of coherence is measured with validated tools. Findings of such studies provide data on correlates of the sense of coherence and its effect on many aspects of human health and behavior.

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Luis Saboga-Nunes

Introduction

In 1994, Aaron Antonovsky made a trip to Lisbon, where he was the special guest at the post-graduation series of conferences held at the Lisbon Faculty of Medicine. During this conference, professional translators were not always able to maintain a steady discourse since they lacked the vocabulary to translate his concepts. Several translator silences left Antonovsky's words unaccounted for; many in the audience could not follow him in English. Words and terms like salutogenesis, sense of coherence, comprehensibility, manageability, meaningfulness, and generalized resistance resources, were left untranslated, giving each participant the freedom to find the best words to link those concepts together into the framework of the new paradigm (Antonovsky, 1985). Following the conference in a private meeting with the present author, Antonovsky took time to review his ideas and clarify several questions about the relevance of the salutogenic perspective in different social contexts.

After returning to Israel, Antonovsky honored my request, and sent all of his salutogenesis newsletters to Lisbon, among other relevant materials. Following this first exchange and to get more deeply into the salutogenic paradigm, I sent a letter to Antonovsky with new queries. A short reply from his secretary informed me that Professor Antonovsky had passed away. Only a few weeks after the Lisbon conference, he had succumbed to a myeloid leukemia.

The process of introducing Antonovsky's insights in Portugal suffered some suspicion and opposition. My proposal to expand salutogenesis research into the Portuguese context was not readily accepted at first by the Board of the Scientific Council of one of the major faculties in the field of health sciences. It was only after the persistent intervention of Professor Sampaio de Faria, who had been at the World Health Organization's Copenhagen headquarters, that barriers were surmounted. The first major piece of Portuguese research took place between 1997 and 1999, with the validation in Portuguese of the Orientation to Life Questionnaire (Saboga-Nunes, 1999). From there, several theses, articles, programs, conferences, research grants proposals, and even top level governmental programs recognized the relevance of the salutogenic paradigm. Today several training programs at the National School of Public Health in Lisbon carry the salutogenic blueprint, and throughout the country, several faculties in the health sciences include salutogenesis in their curricula. This has also been the case in other Portuguese-speaking countries, like Brazil. Today, instead of being met with suspicion, salutogenesis is recognized as a legitimate research and intervention paradigm in Portuguese-speaking countries.

Antonovsky's Legacy Travels to the Web and Salutogenesis Goes Virtual

Antonovsky's sudden departure led to a void. This is the context that launched the first internet website on salutogenesis. The goal was to make his ten salutogenesis newsletters accessible in electronic format to all researchers, along with the first database on salutogenesis (Karraker & Grochowski, 2001). Special permission from Professor Antonovsky's wife, Helena, with whom I continued to correspond and request and receive materials, helped to establish the pool of resources for the new website. Three years after Antonovsky's visit to Lisbon, the first website

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dedicated to the sense of coherence (http://www.angelfire.com/ok/soc) was activated from Lisbon. Following the increasing number of site accesses and information processing demands, a new design and internet protocol was established at http://www.salutogenesis.net in the beginning of 2002, providing a more efficient web tool to empower researchers working with the salutogenic paradigm. This helped to disseminate salutogenesis research progress not only in Portuguese, but in five other major languages as well.

Salutogenesis Research in Portuguese

Translation of the 13-item Orientation to Life Questionnaire (OLQ) (short version) to Portuguese was done in 1994 (Geada, 1994). Full translation and subsequent validation of the 29-item OLQ (Questionário Orientação para Viver (QOV) was undertaken in 1999 (Saboga-Nunes, 1999). Portuguese research on OLQ measurement (psychometric properties, reliability, validation, and factorial analysis) helped to establish its cultural relevance, with contributions from both quantitative and qualitative methodologies. It linked the sense of coherence with stress management and mental health. Antonovsky's proposal is that a personal disposition, that he called the sense of coherence, can best predict stress outcomes. Also, the relationship between the sense of coherence and physical and mental health was observed in the Portuguese social context. This research generated new evidence to inform the development of intervention to strengthen the capacity of people to cope, in a healthy manner, with stress resulting from traumatic and psychosocial factors, as well as with endemic stress.

The Portuguese research also highlighted the relevancy of the generalized resistance resources concept and illuminated their importance for individuals' capacity to cope with stress. In the continuum functional/dysfunctional, a person with a high sense of coherence manages and functions better. A low sense of coherence is related with poor health management. This construct, taken as an independent variable and not as an instrument to evaluate health, is fundamentally composed of social factors. It is definitively an instrument of analysis that allows us to see health as something more global (WHO's definition of health). These conclusions, in the Portuguese context, are anchored in the results of the study that involved a sample of 643 persons asked to fill in a questionnaire to provide examples of stressful situations, and report what specific behaviors were activated in these situations (Saboga-Nunes, 1999). This sample gathered together information from different parts of Portugal and included mainly people

who were not declared sick and were living their lives on an everyday regular basis. A variety of measures were obtained including anxiety, locus of control, coping efficiency, social networking, social support, personal disposition, health-related lifestyle behaviors, and outcomes including health and satisfaction. Age as well as social, educational and economic strata, gender, and a number of life stress situations mentioned by each individual were considered as confounding elements. The results support Antonovsky's (1987) suggestion in the Portuguese context, that the sense of coherence is relevant in managing stressful events and helping people remain both physically and psychologically healthy. Further, this study suggests that people from Portugal can also develop similar levels of the sense of coherence as in other cultures. Finally, it established the psychometric properties of the Portuguese version of the QOV. It was predicted that the QOV would demonstrate reliability, satisfactory internal consistency, and test–retest reliability. On the validity level it focused on content, face, and consensual, before considering convergent and discriminant validity with the multi-method multi-trait method, known groups validity and criterion validity. Exploratory factor analytic procedures to examine the factor structure of the QOV were undertaken (Saboga-Nunes, 1999). Results indicated satisfactory internal reliability as demonstrated by a high Cronbach's alpha coefficient (between 0.83 and 0.90), in line with the range of results found with the English version sense of coherence (Cronbach's Alpha 0.84–0.93) (OLQ). The negative correlation between the QOV, perception of stress and anxiety suggest the external validity of the scale. Test–retest reliability analysis provided high correlations ($r = 0.88$) between groups. Discriminant validity suggests that the QOV is correlated with social network, and with locus of control. Principal components analysis produced a solution with eight factors, which were further reduced to only one factor, suggesting that the QOV is a unidimensional instrument.

Convergent validity was examined; locus of control was related to the QOV ($r = 0.36$) at a magnitude similar to the OLQ ($r = 0.39$), and self-perceived health was correlated with the QOV ($r = 0.31$). Discriminatory validity was explored with anxiety, with which the QOV was correlated at a similar magnitude ($r = 0.27$) as was the OLQ ($r = -0.21$). In addition, the QOV was negatively correlated with isolation ($r = -0.45$) and stress ($r = -0.23$), as expected based on OLQ in English (Saboga-Nunes, 1999).

Antonovsky proposed that the sense of coherence is stabilized in adulthood. In a test of this assumption with the QOV, a test–retest of the scale showed stability between

Fig. 46.1 Mapping the words to find the core etymology of the sense of coherence concept in Portuguese (sentido de coerência, senso de coerência and sentido interno de coerência). *Source*: Open Access Portuguese Institutional Repositories, RCAAP, 2015
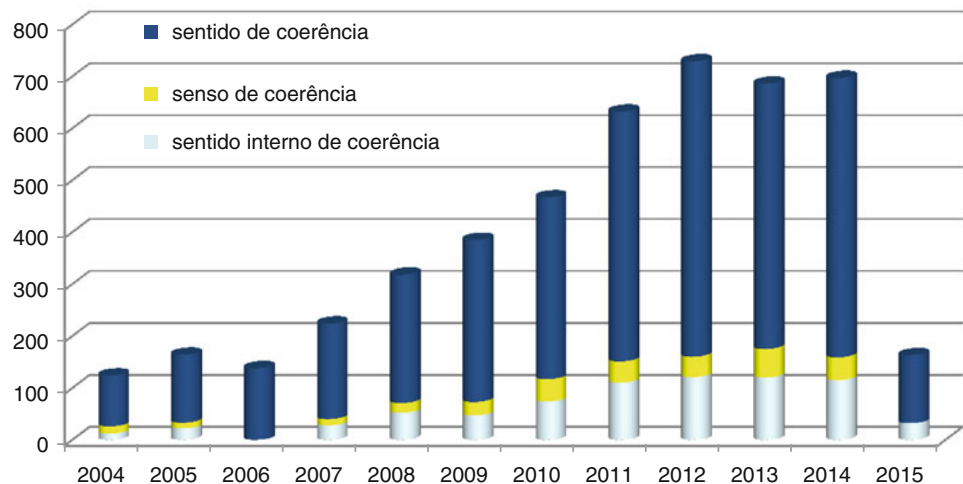
time one and time two ($r = 0.88$) in the Portuguese validation research study (Saboga-Nunes, 1999). As this result started to be disseminated with the help of the website, several other researchers engaged the salutogenesis approach in Portugal and in Brazil.

Translation Challenges

Geada (1994) translated the sense of coherence into *sentido interno de coerência*, without any validation process (Saboga-Nunes, 1998). Later on, after a process of back translation and focus group discussions, the word *interno* was dropped since it was considered redundant. Thus, *sentido de coerência* was proposed as the culturally validated and adapted concept for the *sense of coherence* (Saboga-Nunes, 1999).

There are 838 occurrences of "*sentido interno de coerência*" in the literature between 2004 and 2015. Nevertheless, the main stream of usage is "*sentido de coerência*", with 4148 occurrences in Portuguese reference lists between 2012 and 2014. Through the years, Portuguese researchers have been dedicating more and more interest to the construct (numbers of citations are in the parentheses): 2014 (538), 2013 (511), 2012 (569), 2011 (481), 2010 (350), 2009 (312), 2008 (247), 2007 (184), 2006 (138), 2005 (131). By publication type, these occurrences are distributed as follows: master theses (1991), articles (1005), conference presentations (326), other (86), doctoral dissertations (316), part of book or chapter of book (136), bachelor's theses (87), books (66), reports (75), research paper (30) (Open Access Portuguese Institutional Repositories, RCAAP, 2015).

A shift from this main stream usage (that is the translation of the sense of coherence by *sentido de coerência*) occurred with a translation to Portuguese (in a Spanish journal) of

proceedings from Bengt Lindström's conference on resiliency in 2001 (Lindstrom, 2001). The translator could not find the right word in Portuguese for the *sense of coherence* concept, and did a transliteration by using the Spanish word "senso" for *sense*, transliterating *sense of coherence* into *senso de coerência*. From this, a tradition started, mainly in the Brazilian literature. In 2007, the Brazilian nurse Dantas, aiming at validating the sense of coherence scale in Portuguese, referred to the *sense of coherence* not as *sentido de coerência* but as *senso de coerência* (Dantas, 2007). A summary of usage of the various translations is given in Fig. 46.1.

In Portuguese, *salutogénese* (salutogenesis) is used very rarely compared to use of the various translations of the sense of coherence; just 19 occurrences have been found: master's theses (7) doctoral theses (5) other (3) article (3) book (1) (Open Access Portuguese institutional repositories, RCAAP, 2015).

Salutogenesis Research in Portuguese

Salutogenesis and Brucellosis

Brucellosis (an infectious disease caused by the Brucella bacteria that can spread from animals to humans) is a serious public health issue. Dealing with it can be a challenge because of the environmental and contextual factors that influence its recurrence. Brito (2004) used the salutogenesis approach to build an intervention to tackle brucellosis incidence. A community intervention was proposed to decrease Brucellosis incidence in Serra da Estrela (Portugal), where it is about 50 times higher than in the country as a whole. Brito (2004) proposed an education model inspired by the salutogenic perspective and consciousness-raising (Freire's model). She found it effective in modifying breeders'

knowledge, beliefs, and attitudes regarding brucellosis control. A community-based intervention launched during 2004–2005 was intended to educate 27 groups of breeders plus their relatives and neighbors (Brito 2004). With a culturally designed course to prevent brucellosis, the sense of coherence showed a significant impact on the process of increasing knowledge/consciousness about brucellosis and modifications of attitude through the National Plan of Brucellosis Eradication.

Smoking Cessation

In Portugal the prevalence of smokers over 15 years of age is 25 % (Eurobarometer 429, 2015). While the strategy of helping people to quit smoking has been emphasized at National Health Service (NHS) level, the uptake of cessation assistance has exceeded the capacity of the service (Ferreira, 2008). This induced the search for new theoretical and practical venues to offer alternative options to people willing to stop smoking. Traditionally the pathogenic paradigm emphasizes a person-to-person approach, based on the "magic bullets" of medications (that are very expensive and unaffordable to many smokers). Alternatively, in order to test salutogenesis as a framework to address the problem of how to support intentions to make behavioral changes (IBC) and behavior changes (BC)—smoking cessation—a web-based intervention was set up in 2007 (Saboga-Nunes, 2012).

The theoretical framework of the sense of coherence was used to build this Web-Assisted Tobacco Intervention Probe (WATIP) at www.parar.net. A group of 3150 tobacco users answered initial eligibility questions. In the end, 1463 met all eligibility requirements, completed intake, decided on a day to quit smoking (Dday) and declared IBC, while a second group of 650 did not decide on a Dday. With two quit attempts made before joining the platform, most of the participants had experienced past failures while wanting to stop. These participants followed an intervention that was built specifically to reinforce their sense of coherence.

There were differences between groups in IBC reflecting the high and low levels of the sense of coherence score (OR = 1.43, $p = 0.006$); those who considered setting a Dday had higher levels of the sense of coherence. BC and the usability of the platform were explored a year after IBC was declared. In this study, the sense of coherence was associated with the decision to set a day to quit smoking and with smoking cessation (Saboga-Nunes, 2012). The website at (www.parar.net) is a healthy lifestyle intervention, structured according to the salutogenic paradigm to help people to move to a life without tobacco. More than 15,000 people have used information at this website to date.

Salutogenesis and Families of People with Psychotic Disorders

Pereira (2010) investigated salutogenesis in a cohort study of families of patients with psychosis in the Lisbon area. His aim was to analyze the importance of caregivers' sense of coherence as a protective factor for psychological distress, using data from the Families of Psychotic Patients (FAPS) Project. FAPS is a prospective study of a convenience sample of 108 primary caregivers to patients with ICD-10 schizophrenia, schizo-affective or delusional disorders, in community mental health services. Comprehensive caregivers' assessments included the Involvement Evaluation Questionnaire-IEQ, General Health Questionnaire-GHQ12, and the Orientation to Life Questionnaire (sense of coherence). Patients are given the BPRS (symptoms) and WHO-DAS II (disability). There were significant correlations between the sense of coherence and GHQ and IEQ (Gonçalves & Saboga-Nunes, 2008). Stress–appraisal–coping paradigms have been prevalent in caregiving research, but their usefulness must not preclude testing salutogenic approaches (Antonovsky, 1979), as is the case in positively focused family interventions (Gonçalves, 2010).

Marques and Gonçalves (2014) also studied couples and families of people with psychotic disorders, using a qualitative research approach (combining in-depth individual and joint interviews), triangulated with the measures of the Portuguese version of the Orientation to Life Questionnaire—sense of coherence scale (Antonovsky, 1987; Saboga-Nunes, 1999) and the Quality of Carer–Patient Relationships—QCPR. Results highlighted that diagnosis played an important role on the sense of coherence's comprehensibility component (life makes sense). Good pre-caregiving and current relationship were associated with carers' ability to cope, namely sense of coherence's manageability (problems will be bearable) and meaningfulness (life is viewed as a challenge). Her findings suggested that an understanding of QR and the sense of coherence prior to diagnosis may encourage positive patterns of care, foster successful adaptation to changing needs, and support in-home arrangements as long as possible (Marques & Gonçalves, 2014).

Salutogenesis and Maternal–Fetal Attachment

Maternal–fetal attachment (MFA) is not yet a totally understood and well-operationalized concept. Nevertheless, it is well-established that MFA is a key determinant in health promotion to reduce risk factors or their impact on mother and child, and strengthen protective factors to increase resilience. MFA is also correlated with health practices during pregnancy that influence pregnancy and baby outcomes.

Fig. 46.2 Links between the European Health Literacy framework (HLS-EU) and the Sense of Coherence model (respectively for the dimensions of comprehensibility (understanding & knowledge), manageability (appraisal and competence), and meaningfulness (application and motivation)
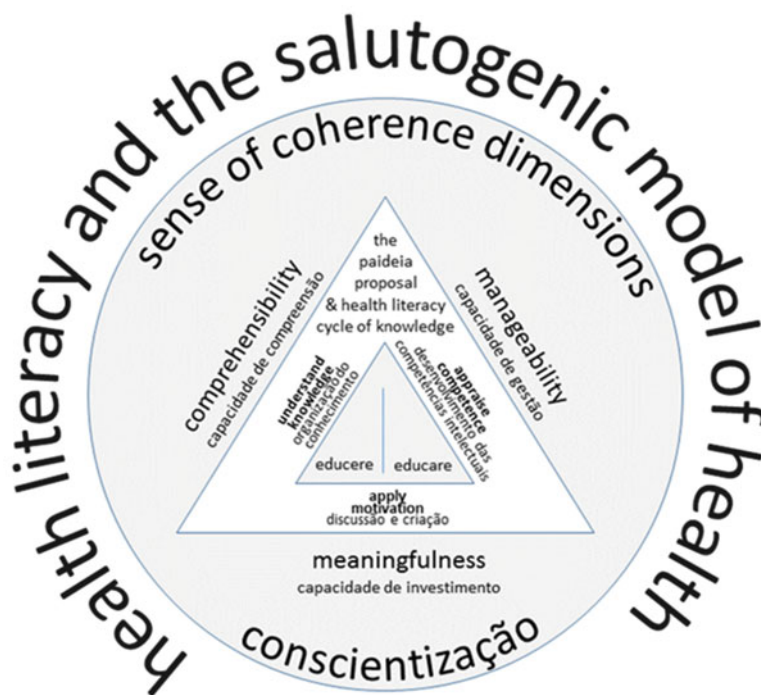
MFA seems a relevant concept for the future mother–baby interaction, but more studies are needed to clarify the concept and its operationalization. In research by Correia (2014), 92 pregnant women were recruited from the Maternal Health Consultation in Primary Health Care at Amadora, Portugal, who participated in these (among other) assessments at 12 and 20 weeks of pregnancy and 6 months after giving birth: sociodemographic data, the Edinburgh post-natal Depression Scale (EDPS), the General Health Questionnaire (GHQ), and the Sense of Coherence questionnaire. The association between psychosocial risk factors and MFA was mediated by depression and the sense of coherence, having a clear and opposite relevance to MFA. Pregnancy can be considered as a maturational process and an opportunity to change, where adaptation processes occur, buffering risk, decreasing depression, and increasing sense of coherence (Correia, 2014).

Salutogenesis and Health Literacy: Moving Up in the Ladder of Health Promotion

Although there are different approaches to discuss health literacy today, one of the latest that was developed—the European Health Literacy framework (HLS-EU)—connects closely to the sense of coherence (Fig. 46.2) (Saboga-Nunes et al., 2014).

Educators and the education settings can play a major role in promoting health literacy as a direct outcome (Saboga-Nunes et al., 2014). They also can contribute to build a strong sense of coherence in their students. In the CrAdLiSa

project in Portugal, adolescents' health literacy and sense of coherence assessments were done with the Portuguese-validated version of the European Health Literacy Survey, (Saboga-Nunes & Sorensen, 2013), and the OLQ. A sample of 832 students participated in the CrAdLiSa project (Cavalheiro & Saboga-Nunes, 2014). Reliability analysis of HLS-EU-PT dimensions show an internal consistency (Cronbach's alpha coefficient) of 0.946 (healthcare dimension), 0.947 (disease prevention dimension), and 0.958 (health promotion dimension), while the global instrument presents a value of 0.98. The prevalence of inadequate health literacy was 4.2 % and the prevalence of problematic health literacy was 25.6 %. The OLQ was internally consistent (Cronbach's alpha coefficient of 0.87. There was a positive association between health literacy and the sense of coherence ($r = 0.49$), as depicted in Fig. 46.3.

Investigating further on the relationship between health literacy and the sense of coherence, results show that from Type 1 to Type 8 of participants' sense of coherence, there was a consistent increase in the level of health literacy (Fig. 46.4).

Conclusion

Since 1994, when Antonovsky visited Portugal, research on the salutogenesis paradigm has developed in different perspectives. The first stage of this development focused on struggling with the new concepts, their translation, and meaning in a different cultural setting than that of

Fig. 46.3 Relation between health literacy (HLS-EU-PT) and the sense of coherence ($r = 0.4872$, $p = 0.001$). *Source*: CrAdLiSa project, 2014

Source: Antonovsky, 1987

Component				
Type	Comprehensibility	Manageability	Meaningfulness	Prediction
1	High	High	High	Stable
2	Low	High	High	Rare
3	High	Low	High	Pressure to move up
4	Low	Low	High	Pressure to move up
5	High	High	Low	Pressure to move down
6	High	Low	Low	Pressure to move down
7	Low	High	Low	Rare
8	Low	Low	Low	Stable
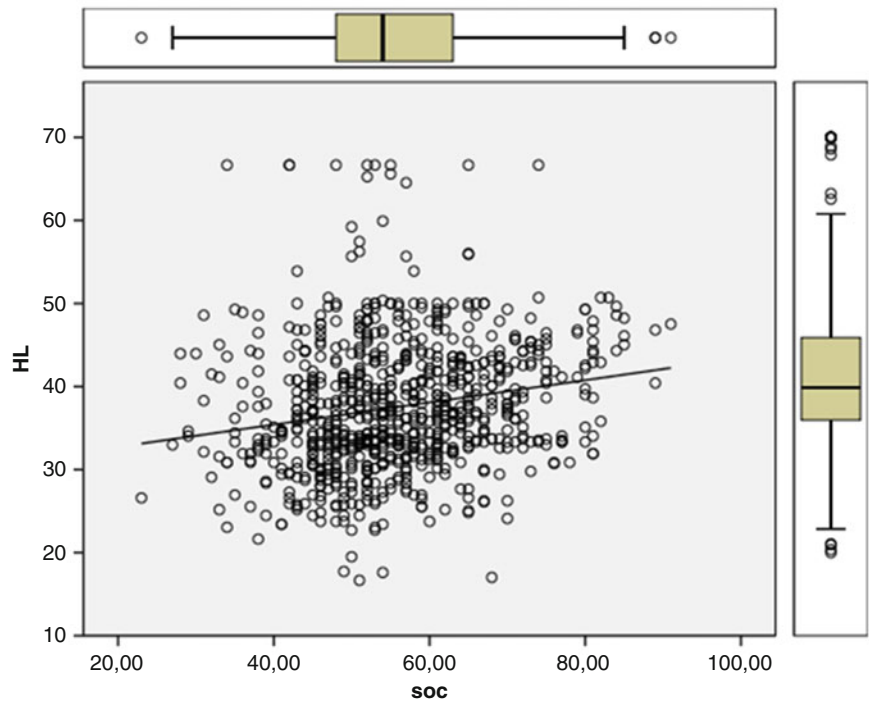
Fig. 46.4 Relationship between the sense of coherence: different types and the levels of health literacy (inadequate, adequate). *Source*: CrAdLiSa project, 2014

Antonovsky's. Even today, it continues to be a challenge to have a common understanding in different countries speaking Portuguese, like Portugal or Brazil. New perspectives emerge like using the sense of coherence framework to address changes in lifestyles like smoking cessation or brucellosis prevention. Addressing children's well-being or focusing on mental health promotion are areas where salutogenesis can help achieve the goal of promoting health and favoring well-being in the Portuguese context.

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Perspectives on Salutogenesis of Scholars Writing in Spanish

Dolors Juvinyà-Canal, Mariano Hernán, and Javier Gallego-Diéguez

Introduction

In the last few years, the influence of salutogenesis has been growing, both in the area of research and in the public health and health promotion strategies and policies, in Spain and in Latin America. Since Hernán and Lineros (2000) reviewed this model in Spain, the number of publications that apply Antonovsky's perspective, as well as the actions based on the health assets model, have increased.

In the last few years, this model has had an impact on the health promotion actions which have been carried out in the different scenarios. More precisely, in school health promotion, some actions oriented to promote the personal and social development of educators have been promoted, and both internal and external personal resources have been considered as an important way to reinforce general resistance resources. Proposals that promote emotional health, coexistence, resilience, and physical activity have been emphasized. Another important area that has been developed lately is the momentum of the Spanish Health Promotion Universities Network and the Latin America Health Promotion Universities Network (REUS and RIUPS, respectively, in Spanish) for setting up synergies among university members and for improving health promotion education and research. The asset maps methodology is being used in order to identify health resources. In 2013, the *Alliance for Community Health* was set up by many Spanish Public Health Administration entities, by the Medicine, Nursing and Public Health Scientific Societies and by the Public Health Universities and Education Centers, with the aim to promote community health from primary care health services.

The analysis of health social determinants and health equity has generated a large debate and has led to the development of different strategies and plans to reduce health social inequalities. The salutogenesis and health asset model is extremely useful when it is included in policies and programs whose aim is to achieve health equity.

Review of the Scientific Literature on Salutogenesis in Spanish

This literature has been searched from 2000 on in the Pubmed, Cinhal, Medline, Cochrane, Redalyc, and Scopus databases, by entering the following keywords: *salutogenesis, sense of coherence, salutogenic, salutogenic approach, health assets, and SOC*.

The selected papers were classified by their year of publication, publication type, and these topics:

- Sense of coherence
- Salutogenic policies
- Salutogenesis approach.
- Health assets

From the year 2000 to this writing, the salutogenesis literature in Spanish includes 58 articles, five books, and eight doctoral dissertations, produced in Spain, Portugal, and countries of Latin America. Tables 47.1, 47.2, 47.3, and 47.4 list journal articles in the ascending order of year of publication, with citation information in Spanish. The last column in each Table indicates in English the study group or groups that are in focus in each article.

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Table 47.1 Sense of coherence—journal articles

Date	Authors	Article title	Journal title	Volume (issue): pages	Study group(s)
2004	Chacón Roger, M.; Jorge Grau, A.	Burnout y variables personales moduladoras en enfermeros que trabajan en hospitales oncológicos	*Psicología y Salud de la Universidad Veracruzana*	14(1):67–78	Nurses
2007	Segura, A.	La prevención de la dependencia	*Revista española de geriatría y gerontología*	42(2):7–11	Dependents
2007	Dejo Vásquez, M.	Sentido de coherencia, afrontamiento y sobrecarga en cuidadores familiares de ancianos con enfermedad crónica	*Avances en psicología latino-Americana*	25(1):64–71	Elderly relatives with chronic illness
2007	Virués-Ortega, J.; Martínez, P.; del Barrio, J.L.; Lozano, L.	Validación transcultural de la Escala de Sentido de Coherencia de Antonovsky (OLQ-13) en ancianos mayores de 70 años	*Medicina clínica*	128(13):486–492	Elderly
2008	Besteiro, J.; Álvarez, M., Lemos, S.; Muñiz, J.; Costas, C.; Weruaga, A.	Dimensiones de personalidad, sentido de coherencia y salud percibida en pacientes con un síndrome fibromiálgico	*International Journal of Clinical and Health Psychology*	8(2):411–427	Patients with fibromyalgia syndrome
2008	Fernández, Mª E.; Mayo, L.; García Mata, Mª. A.; Liébana, C.; Fernández, D.; Váquez, A. Mª.	Sentido de coherencia y salud percibida en alumnos universitarios de ciencias de la salud	*Revista Española de Sanidad Penitenciaria*	5(3):1–5	University students of health sciences
2008	Ureña Bonilla, P.	Calidad de vida, sentido de coherencia y niveles de sedentarismo en académicos y administrativos del campus presbítero Benjamín Núñez, U.N.A.	*Revista MH Salud*	5(2):1–15	Academic and administrative staff
2009	Ureña Bonilla, P.; Castro Sancho, C.	Calidad de vida, sentido de coherencia y satisfacción laboral en profesores(as) de colegios técnicos en la Dirección Regional de Heredia	*Educare*	13(1):71–87	Teachers of technical colleges
2011	Robledo-Martínez,R.; Agudelo-Calderón, C.	Aproximación a la construcción teórica de la promoción de la salud	*Revista de Salud Pública*	13(6):1031–1050	
2011	Rodríguez Costa Schmidt, D.; Aparecida Spadoti Dantas, R.	Análisis de validez y confiabilidad de la versión adaptada para el portugués del Cuestionario de Sentido de Coherencia de Antonovsky entre profesionales de enfermería	*Revista Latino-Americana de Enfermagem*	19(1):1–8	Nurses
2012	Malagón, M. C.; Juvinyà,D.;; Bonmatí, A.; Fernández, R.; Bosch, C.; Bertrna,C.; Suñer, R.	El sentido de coherència de las enferemeras y validación del cuestionario SOC-13	*Metas de Enfermería*	15(9):27–31	Nurses
2012	Malagón, M. C.; Fuentes, C.; Suñer, R; Bonmatí, A.; Fernández, R.; Bosch, C.	El sentido de coherencia en el colectivo enfermero	*Enfermería Clínica*	22(4):214–218	Patients
2013	Paredes, J.; Agulló, J.; Vera, E.; Hernán, M.	Sentido de coherencia y activos para la Salud en jóvenes internos en centros de Menores	*Revista Española de Sanidad*	15:87–97	Young inmates
2013	García-Moya, I.; Rivera, F.; Moreno, C.; López, A.	Calidad de la relación entre los progenitores y sentido de coherencia en sus hijos adolescentes. El efecto de mediación de la satisfacción familiar	*Anales de psicología*	29(2):482–490	Teens

Besides the salutogenesis literature in journals, as listed in Table 47.5, several noteworthy books have been published. The first one was published in 2000, and the other four, were published after 10 years, one book on 2010 and three books on 2011. The last column of Table 47.5 indicates the issue covered in the book.

Finally, eight doctoral dissertations have been identified. Also, in Table 47.6, the last column indicates the subject of the doctoral dissertation, and five of the eight focus on population groups.

Table 47.2 Salutogenic policies—journal articles

Date	Authors	Article title	Journal title	Volume (issue) page	Study group
2008	Sanabria Ferrand, P.A.	Reseña de "Psicología de la Salud: Temas Actuales de Investigación en Latinoamérica" de L. Flórez Alarcón, M.M. Botero y B. Moreno Jiménez (eds.)	*Inter-American Journal of Psychology*	42(1):181–182	
2008	Segura, A.	Políticas de salud (actuaciones poblacionales) en los servicios asistenciales. Informe SESPAS 2008	*Gaceta Sanitaria*	22(1):104–110	Care services
2009	Omar, A.; Paris, L.; Aguilar de Souza, M.; Almeida da Silva, S.E.; del Pino Peña, R.	Validación del inventario de bienestar subjetivo con muestras de jóvenes y adolescentes argentinos, brasileros y mexicanos	*Suma Psicológica*	16(2):69–84	Teens
2010	De Lellis, M.	Psicología y políticas públicas saludables	*Revista Latinoamericana de Ciencia Psicológica*	2(2):102–106	
2011	Álvarez-Dardet, C.; Ruiz Cantero, Mª T.	Patrimonio de salud ¿Son posibles las políticas salutogénicas?	*Revista Española de Salud Pública*	85(2):123–127	
2012	Agost Felip, Mª R.; Martín Alfonso, L.	Acercamiento al papel de los procesos de exclusión social y su relación con la salud	*Revista Cubana de Salud Pública*	38(1):126–140	

Spanish Salutogenesis Group

The Spanish Salutogenesis Group was set up on July 12, 2012, stimulated by a proposal of Professor Bengt Lindström when he visited the University of Girona (Spain) for the presentation of the book "The Salutogenic Hitchhiker," which had been translated into Spanish by the Health Promotion Chair at the University of Girona. This group was set up by the authors of this chapter with the aim to create a meeting point, a resource for Spanish-speaking professionals who are working or wish to work from the salutogenic approach, as well as to promote the work that is being carried out in Spanish speaking countries and to build a bridge with the international group. The group's objectives are to:

- Expand the network of professionals working in salutogenesis in Spanish.
- Promote and exchange experiences and knowledge on salutogenesis.
- Promote salutogenesis research and development within our contexts.
- Stimulate the implementation of the salutogenic approach in intervention, education, and research.

In order to develop a strategy that fosters the salutogenic approach, based on assets for public health, the Salutogenesis Spanish Group proposes the ten principles below:

1. The contributions of sociology, psychology, and human learning theories to medicine and health sciences have generated a salutogenic approach to public health. This new perspective complements and, somehow, also opposes the more traditional perspective of the biomedical sciences, which focuses on the recovery of health deficits. Salutogenesis is re-oriented towards people's well-being.

2. The salutogenic approach emphasizes the assets that generate health and also examines the elements that make it possible for people to understand, manage, and find a sense to their life. These elements focus on the individual and group resources available—the so-called general resistance resources—that help people to understand their own life, the effects of the structural inequalities and therefore become stronger to overcome them. This perspective and its health paradigms are especially necessary now, in a context of global crisis and deep economic changes that can impact people and foster social inequalities which, in turn, have an impact on health.

3. The existing knowledge should be rebuilt and new knowledge should be gathered, in order to provide legislators, politicians, managers, promotion specialists, and professionals in the health, well-being, and education sectors with positive approaches for health, well-being, and human development. The salutogenic approach should be included in public health regulations, plans, and programs.

4. Promoting an approach to public health based on the vital life of people could make it easier to understand and to manage health assets in each phase of life. If health is included in all public policies, we will be able to understand people and communities in their contexts and in the different phases of life, and clarify the changes required in policies for better health and well-being.

Table 47.3 Salutogenic approach—journals articles

Date	Authors	Article title	Journal title	Volume (issue) page	Study group
2001	Hernán, M.; Ramos, M.; Fernandez, A.	Revisión de los trabajos publicados sobre promoción de la salud en jóvenes españoles	*Revista Española de Salud Pública*	75(6) :491–503	Teens
2002	Franco, G. A.	Editorial: Los temas de la salud pública	*Revista Facultad Nacional de Salud Pública*	20(1):1–2	
2002	García Martín, M. A.; Hombrados Mendieta, Mª I.	Control percibido y bienestar subjetivo: un análisis de la literatura gerontológica	*Revista multidisciplinar de gerontología*	12(2):90–102	Elderly
2009	Londoño Pérez, C.	Optimismo y salud positiva como predictores de la adaptación a la vida universitaria	*Acta Colombiana de Psicología*	12(1):95	College students
2009	Sánchez, D.; Lineros, C.; Hernán M.	Potenciales activos para la salud de la juventud en Nicaragua	*Gaceta Sanitaria*	20:303	Young people
2009	Pérez, M.; Jiménez, J.; García, J.; Hernán, M.	Salud en internet para adolescentes y los jóvenes	*Gaceta Sanitaria*	13:138	Teens and young people
2011	Rivera de los Santos, F.; Ramos Valverde, P.; Moreno Rodríguez, C.; Hernán García, M.	Análisis del modelo salutogénico en España: aplicación en salud pública e implicaciones para el modelo de activos en salud	*Revista Española de Salud Pública*	85(2):129–139	
2011	Morelato, G.	Maltrato infantil y desarrollo: hacia una revisión de los factores de resiliencia	*Pensamiento Psicológico*	9(17):83–96	Infants
2011	Juárez, F.	El concepto de salud: Una explicación sobre su unicidad, multiplicidad y los modelos de salud	*International Journal of Psychological Research*	4(1):70	
2012	Santana Bravo, F.; Martin Castillo, D.; Camuñez Gómez, MªD.; Bueno Balboteo, JM.	Estudio sobre hábitos alimenticios y actividad física en nuestros adolescentes	*Nutrición Hospitalaria*	27(3):53–75	Teens
2012	Cofiño, R.; Pasarín, Mª I.; Segura, A.	¿Cómo abordar la dimensión colectiva de la salud de las personas? Informe SESPAS 2012	*Gaceta Sanitaria*	26(1):88–93	
2012	Oliveira, C.; Costa, A. L.	Viver o estado terminal de um familiar: leitura salutogénica de resultados de um estudo de caso	*Revista electrónica online (Scielo)*	21(3):698–709	
2012	Mariñelarena-Dondena, L.	Recepción y desarrollo de la psicología positiva en la Universidad de Buenos Aires (1998–2008)	*Revista Latinoamericana de Ciencia Psicológica*	4(2):76–83	
2012	Saforcada, E.	Psicología sanitaria: historia, fundamentos y perspectivas	*Revista Latinoamericana de Ciencia Psicológica*	4(2):120–130	
2012	Ortega-Calvo, M.; Santos, J. M.; Lapetra, J.	La animación científica en atención primaria	*Atención Primaria*	44(9):549–554	
2012	Bakker, Arnold B.; Rodríguez Muñoz, A.; Derks, D.	La emergencia de la psicología de la salud ocupacional positiva	*Psicothema*	24(1):66–72	
2012	Bakker, Arnold B.; Rodríguez Muñoz, A.	Introducción a la psicología de la salud ocupacional positiva	*Psicothema*	24(1):62–65	
2012	Thielmann, K.; Illnait Ferrer, J.	La crisis y la salud. ¿La salud en crisis?	*Revista Cubana de Salud Pública*	38(2):278–285	
2013	Juvinyà, D.	Salutogénesis, nuevas perspectivas para promover la salud	*Enfermería Clínica*	23(3):87–88	

Table 47.4 Health assets—journal articles

Date	Authors	Article title	Journal title	Volume (issue) page	Study group
2009	Botello, B.; Hernán, M.	Opiniones de los jóvenes sobre la salud mental en Huelva según el modelo de activos.	*Gaceta Sanitaria*	33(96)	Young people
2010	Hernán, M.; Lineros, C.	Los activos para la salud. Promoción de la salud en contextos personales, familiares y sociales.	*Rev. FUNDESFAM*	2(2)	
2011	Rivera de los Santos F.; Ramos P.; Moreno C.; Hernán M.	Análisis del modelo salotogénico en España: aplicación en salud pública e implicacions para el modelo de activos en salud	*Revista Española de Salud Pública*	85(2):129–139	
2012	Ramos-Morcilloa, A.J.; Fernández-Salazar, S.	Cuidando a un preescolar desde el modelo de activos en salud: caso clínico	*Enfermería Clínica*	22(3):166–169	Preschool
2012	Hernán, M.	Activos para la Salud y Salutogénesis; emergentes en Salud Pública	*bepSALUT*	1	
2013	Gómez-Acosta, C. A.; Londoño Pérez, C.	Modelo predictor del consumo responsable de alcohol y el comportamiento típicamente no violento en adolescentes	*Health and addictions: salud y drogas*	13(1):23–34	Teens
2013	Botello, B.; Palacio, S.; García, M.; Margolles, M.; Fernández, F.; Hernán, M.; Nieto, J.; Cofiño, R.	Metodología para el mapeo de activos de salud en una comunidad	*Gaceta Sanitaria*	27(2):180–183	
2012	Cassaretto, M.; Martínez Uribe, P.	Razones para vivir en jóvenes adultos: validación del RFL-YA	*Revista de Psicología*	30(1):169–188	Young people
2012	Fernández, Mª R.; Thielmann, K.; Bormey Quiñones, MB.	Determinantes individuales y sociales de salud en la medicina familiar	*Revista cubana de salud pública*	38(3):484	
2012	Ruiz-Azarola, A.; Perestelo-Pérez, L.	Participación ciudadana en salud: formación y toma de decisiones compartida. Informe SESPAS 2012	*Gaceta Sanitaria*	26:158–161	
2012	Agost Felip, Mª R.; Martín Alfonso, L.	Acercamiento al papel de los procesos de exclusión social y su relación con la salud	*Revista Cubana de Salud Pública*	38(1):126–140	
2013	Pérez Jarauta, M.J.; Echauri Ozcoidi, M.	Educación versus coerción. Una apuesta decidida por la educación para la salud	*Gaceta Sanitaria*	27(1):72–74	
2013	Morgan, A.; Hernán, M.	Promoción de la salud y el bienestar a través del modelo de activos	*Revista Española de Sanidad*	15(3):78–86	

Table 47.5 Salutogenesis books

Date	Authors	Title	Publishing Company	Issue
2000	Grün, Anselm	¿Qué enferma y qué sana a los hombres?	Verbo Divino	Factors that make people ill or better
2010	Hernán García, M.; Lúis Mena Jiménez, Á.; Morgan, A.	Formación en salutogénesis y activos para la salud	Escuela Andaluza de Salud Pública	Assets for health
2011	Hernán García, Mariano; Lúis Mena Jiménez, Ángel; Lineros González, Carmen; Botello Díaz, Blanca; Cubillana de la Cruz, Pablo García; Huertas Povedano, Ángeles	Activos para la salud y promoción de la salud mental	Escuela Andaluza de Salud Pública	Assets for health
2011	Ley C.; Rato M.	Deporte, juego y técnicas participativas como herramientas terapéuticas	Lambert Acad.	Therapeutic value of certain techniques
2011	Lindström, B.; Eriksson, M./Traducción: Dolors Juvinyà	Guía del autoestopista salutogénico : camino salutogénico hacia la promoción de la salud	Documenta Universitaria	Translation into Spanish of a guide

Table 47.6 Salutogenesis—doctoral dissertations

Date	Author	Title	University	Subject
2006	Carrondo, E.	Formada profissional de enfermeiros e desenvolvimento da criança: contributo para um perfil centrado no paradigma salutogénico; Nurses' professional training and child development: contribution to a profile centered on the salutogenic paradigma	Universidade do Minho	Training of professionals
2009	Ley, C.	Acción psicosocial a través del movimiento, juego y deporte en contextos de violencia y de conflicto. Investigación sobre la adecuación sociocultural de la 'terapia a través del deporte' y evaluación de un programa con mujeres en Guatemala	Universidad Politécnica de Madrid	Psychosocial action through sport
2010	Fernández, M. E.	Estrés percibido, estrategias de afrontamiento y sentido de coherencia en estudiantes de enfermería: su asociación con salud psicológica y estabilidad emocional	Universidad de León	Population groups
2011	Ruiz, D.	Calidad de vida del alumnado del aula de mayores de la universidad de málaga y utilización de los servicios de salud	Universidad de Málaga	Population groups
2012	Bennasar, M.	Estilos de vida y salud en estudiantes universitarios: la universidad como entorno promotor de la salud	Universidad de les Illes Balears	Population groups
2012	Rivera de los Santos, F.	Salutogénesis y sentido de coherencia: un estudio psicométrico de la escala SOC en adolescentes españoles	Universidad de Sevilla	Population groups
2013	Bustamante, E.	La comunicación interna y la promoción de la salud estudio de caso en Madrid salud	Universidad Autónoma de Barcelona	Communication and health promotion
2013	Carrillo, J.	Promoción de la salud de los empleados públicos de la Región de Murcia: prevención del estrés a través del Taiji Quan y Qigong	Universidad de Murcia	Population groups

5. Professionals should be involved with communities in all issues related to the health development process, enabling them to use all the capacities of people in a place and social context. By being aware of all we can do for our health and of what should be socially changed—and by taking the necessary steps required—we will illuminate the opportunities available to be healthy.

6. It is important to learn more about the relationship between health and the sense of coherence, which allows people to understand, manage, and find a sense to what happens along their life, and also to know how this impacts on their personal quality of life and on that of their community. An asset for health could be defined as any element or resource that reinforces the capacity of individuals, communities, and populations, so that they keep their health, well-being, and sense of coherence.

7. We should foster and improve the evidence that allows us to further understand the elements that make people and communities live a healthier life. This could help us to emphasize the health determinant analysis models that aim at understanding which is the origin of health and its correlation with quality of life. We should identify the key elements or resources that contribute to health and well-being in childhood and youth—which are crucial phases in life to learn in a healthy way—and also in other stages in life.

8. In order to develop purposes for the strategy that fosters the salutogenic approach, it is very important to apply a multidisciplinary approach and to complement experimental studies with narration, epidemiology, ethnography, sociology, and biomedical sciences.

9. A key element consists of identifying experiences, types of strategies, initiatives, and ways to work that more efficiently lead to the promotion of capacities and abilities in individuals and communities, so that health is maintained, promoted, and recovered.

10. It is absolutely necessary to work so that projects and actions include some indicators that lead to the evaluation of programs based on positive models. We should improve the ability to understand not only the things that work and their results, but also how things work in different contexts—because the social context of people helps to identify priorities and, thus, promote the elements which generate health and reduce the stress created by unfair inequalities, as well as all the elements that could help to design policies that allow people to evolve towards health objectives in the medium and long term.

The website of the Spanish Salutogenesis Group disseminates information about the Group, news related to it, resources, projects, and links.

Monica Eriksson

Introduction

In 1987–1988 Aaron Antonovsky spent a year as visiting professor at the University of Lund, invited and hosted by Professor Marianne Cederblad. This has influenced the development of the Swedish researchSwedish salutogenesis research in a decisive way. His stay in Sweden gave the Swedish researchers an opportunity to personally meet and discuss the salutogenic model of health. It gave inspiration and encouraged researchers to conduct salutogenic research in Sweden. According to Antonovsky, cited in Hansson and Cederblad (1995), the Swedish version translated from the English version of the sense of coherence questionnaire was developed by Lisa Dahlin, Margareta Furu, and Carol Tishelman, at the University of Lund in consultation with Aaron Antonovsky, as the standard version to be used in Sweden.

Two research groups emerged as pioneers in the early Swedish research on salutogenesis. The research team led by Marianne Cederblad and Kjell Hansson at the University of Lund (with colleagues at the Department of Child and Adolescent Psychiatry) conducted groundbreaking research on salutogenesis in the treatment of families and children at risk for developing mental illnesses. Their early cross-sectional studies were followed by longitudinal studies with various time intervals for follow-ups (Cederblad, 1996; Cederblad, Dahlin, & Hagnell, 1994; Dahlin et al., 1990; Dahlin & Cederblad, 1993).

The research group in nursing at the Karolinska Institute in Stockholm, headed by Professor Hjördis Björvell and Professor Ann Langius Eklöf (Langius & Björvell, 1993, 1996, 2001; Langius, Björvell, & Antonovsky, 1992) focused on validating the sense of coherence questionnaire in the Swedish context, both in the general population of Swedes and also among different patient groups.

During his stay in Lund, Antonovsky held lectures at the former Nordic School of Public Health (NHV) in Gothenburg, invited by another front figure in salutogenesis, Professor Bengt Lindström. Here Antonovsky introduced the salutogenic model of health to a Nordic audience of students and professionals. Professor Lindström was at the same time working with his doctoral thesis on the quality of life of Nordic children, adopting a salutogenic approach (Lindström, 1994). In an address at NHV in 2006, Lindström highlighted the valuable contribution of Antonovsky for Nordic research in general and Swedish research in particular (Lindström, 2006). For many years thereafter university courses in salutogenesis were organized at NHV. Students and professionals from the Nordic countries became inspired and encouraged to adopt the salutogenic approach in their different contexts. Inspired by the contacts with Antonovsky, other university courses in salutogenesis were started, for example at the Karolinska Institute in Stockholm. In sum, Antonovsky's visiting year in Lund influenced Swedish research on salutogenesis in a very positive way.

Research Seminars

In 1998, the Swedish Research Council organized a cross-sectional scientific conference on the salutogenic concept of the sense of coherence. Active researchers in the field of salutogenesis were invited to participate. A conference report was produced by (Kumlin, 1998), who was inspired to critically analyze the salutogenic research by Antonovsky, and giving mainly a negative critique focused on many issues. He claimed the salutogenic theory was (a) full of contradictions, (b) that Antonovsky had created a new

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dichotomy between the salutogenic and pathogenic perspective, both excluding the other, (c) that the salutogenic theory did not contribute to the understanding and explanation of health, and (d) the theory did not represent any new perspective on health. Kumlin's pathogenic examination of the salutogenic concept was presented to 15 senior researchers, who all individually responded in written statements (and also collectively) pronouncing many of Kumlin's statements as being unfair and lacking substance (Röster om kasam, 1998).

The experts were scientists who for decades had conducted research based on the salutogenic theory. In addition, many of them had met Antonovsky, and therefore had the opportunity to engage in direct detailed discussions about the salutogenesis and its constructs. Cederblad (1998) raised the question of what makes a theory valuable for research. One way is to empirically test it. She explicitly pointed out that Kumlin ignored the results of all the empirical studies on the sense of coherence concept. Instead, he chose some kind of scientific theoretical analysis. Konarski (1998) objected to Kumlin's vendetta and how Kumlin tried to marginalize Antonovsky and his ambitions as a scientist.

Ten years later, the first international research seminar on salutogenesis was arranged in Helsinki, followed by annual international meetings and seminars in the Nordic countries and national Swedish conferences in Trollhättan.

Research on Salutogenesis Arouses Interest

A systematic search was undertaken in ProQuest (hosting 12 separate scientific databases) per February 11, 2016, for scholarly journals, dissertations, and thesis in the time span 1983–2016, using the sense of coherence, salutogenesis, and Antonovsky (separate search on each word) as the search strategy. This resulted in 3894 hits, out of which at least 530 papers included Sweden in the title or abstract. Searching on dissertations and student theses at different levels in Swedish shows there are at least 334 publications in the period 1983–2015. There are publications from different disciplines such as medicine, nursing, health sciences, public health, psychology, and social work. A systematic research synthesis showed that in 1992–2003, at least 85 different Swedish samples were investigated in salutogenesis research (Eriksson, 2007). Yet, most of the research on salutogenesis in Sweden is published in English. Table 48.1 shows a selection of papers on the salutogenic concepts published in Swedish.

The focus of previous research on salutogenesis in Sweden was to introduce the salutogenic health model to Swedish researchers, and thereafter translate and develop the Swedish version of the sense of coherence scale as a standard version to be used in Sweden (Hansson & Cederblad, 1995). The research was mainly run by research groups located in Lund (University of Lund) and Stockholm (Karolinska Institute). There followed a period of validation of the Swedish version in different samples in different contexts (see as examples Dahlin et al., 1990; Cederblad & Hansson, 1996; Langius & Björvell, 1993).

However, looking at the current situation, a different image emerges. As of this writing, there is ongoing salutogenesis research at most of the universities in Sweden (Fig. 48.1).

Examining salutogenesis research in Sweden that is published either in English or in Swedish, one sees these areas of focus: clinical research related to different disease groups, nursing, aging research, workplace health, oral health, education/pedagogy and research on children and youth. Clinical research using the salutogenic approach is mainly focused on how patients are able to manage stress when suffering from serious illness such as cancer, stroke, multiple sclerosis, heart diseases, and chronic diseases generally. This research is mainly that of research groups at the Karolinska Institute, the Sahlgrenska Academy at the University of Gothenburg, and Malmö University.

The salutogenic perspective and the sense of coherence are concepts well-known in nursing research. It has its background in the time when Antonovsky visited Sweden and offered the opportunity for scientists to discuss and learn about salutogenesis. Antonovsky, in his second book, assumed that nurses would be the professional group that mainly would adopt his thoughts. This has happened generally all over the world, but particularly in Swedish nursing research, thanks to forward-thinking researchers at the Karolinska Institute in Stockholm and Umeå University. At Umeå, the focus has been mainly on aging research, and how elderly people are able to manage everyday life in the face of chronic illness.

Workplace health research has its main localization at Kristianstad University, Stockholm University, Mid-Sweden University, Jönköping University, and Karlstad University. Oral health research adopting the salutogenic approach is an area of research that emerged in the mid-2000, mainly located in Jönköping University. In educational research (pedagogics) some research groups are active at Stockholm University, University of Gothenburg, and Örebro University. Research on children and youth has continued at the University of Lund, the place where it all started, but also at Region Halland and Luleå University of Technology.

Research adopting the salutogenic approach and its core concept of the sense of coherence is extensive, and as

Table 48.1 A selection of papers on the salutogenic concepts in Swedish

Authors/title	Aims
Hansson, K., & Cederblad, M. (1995). Känsla av sammanhang. Studier från ett salutogent perspektiv. Skriftserie Forskning om barn och familj, nr 6	An overview of the salutogenic model of health and a research synthesis of studies using the SOC questionnaire until 1995
Langius, A., & Björvell, H. (1996). The salutogenic model and the use of the sense of coherence scale in nursing research—a methodological report. [Den salutogena modellen och användning av KASAM-formuläret i omvårdnadsforskning—en metodredovisning. Vård i Norden, 16(1), 28–32	To present the psychometrical properties of the Swedish version of Sense Of Coherence (SOC) scale
Tishelman, C. (1996). Critical reflections over the uncritical use of Antonovsky's salutogenic model, focusing on its instrumentalisation in the Sense of Coherence questionnaire. [Några kritiska reflektioner över vårt okritiska bruk av mätinstrument: Exemplet Känsla av Sammanhang frågeformulär]. Vård i Norden, 16(1), 33–37	Critical reflections of the use of SOC questionnaire
Waad, T., & Hult, S. (1998). Att betona det positive. Salutogen kommunikation hjälper "problembarn". Omvårdaren, 5, 20–23	To explain how the SOC can be used in communication with asocial adolescents
Waad, T., & Hult, S. (2001). Att arbeta med sociala nätverkskartor i ett salutogent perspektiv. En beskrivning av nätverkskartan, som utredningsinstrument i öppen och sluten vård. Psyche, 4, 10–13	To introduce how to work with social network maps from a salutogenic perspective
Ervér, M. A., & Fahlström, G. (2001). It is tough having children, but it's simply the best thing that ever happened to me… Focus groups about community support for parents. ["Det är en pärs… det är jobbigt att ha barn, ändå är det det bästa som finns". Fokusgrupper om stöd i föräldraskap]. Vård i Norden, 21(3), 43–46	To gain knowledge of the need for and satisfaction with local community support for parents
Nilsson, B., (2002). Vad betyder känsla av sammanhang i våra liv? Aspekter på stabilitet, kön, hälsa och psykosociala faktorer. [Doctoral thesis]. Umeå: Umeå University	To examine the relationship between SOC and health, disease and recovery among patients with stomach trouble
Svartvik, L., Lidfeldt, J., Nerbrand, C., et al. (2002). High sense of coherence can have health enhancing effects. [Hög känsla av sammanhang kan ha hälsofrämjande effekter]. Läkartidningen, 99(11), 1195–1200	To investigate if middle-aged women with a self-reported low level of SOC also differed in biological variables, from women with a high level of SOC
Hansson, K., Johansson, P., Drott-Englén, G., & Benderix, Y. (2004). Functional family therapy in child psychiatric practice. [Funktionell familjeterapi i barnpsykiatrisk praxis. Om behandling av ungdomskriminalitet utanför universitetsforskningen]. Nordisk Psykologi, 2004, 56(4), 304–320	To examine a model of cooperation in functional family therapy in child psychiatric practice among asocial adolescents
Jakobsson, U. (2008). A brief review of the development and the psychometric properties of the Sense Of Coherence scale (SOC). [KASAM-instrumentets utveckling och psychometriska egenskaper—en översikt]. Vård i Norden, 28(1), 53–55	To discuss the strengths and weaknesses regarding the instruments of psychometric properties

already mentioned, published mostly in English. Papers in Swedish go back mainly to the 1990s and early 2000, when articles were published in Nordic scientific and professional journals. Nowadays there are many handbooks and textbooks in Swedish on how to use salutogenesis in everyday practice, for example, how to work according to salutogenic principles with the elderly (Westlund, 2013; Westlund & Sjöberg, 2005, 2008). Another example is how to transform salutogenic principles and understanding in leadership in organizations (Hanson, 2010, 2015). A university-level textbook on salutogenesis in Swedish is also available (Eriksson, 2015). This is an outcome of the established of a resource center on salutogenesis established

in 2011 at the University West in Trollhättan (www.salutogenesis.hv.se).

Fig. 48.1 Salutogenesis research sites in Sweden

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Questions for the Future: Dialogue on Salutogenesis

Salutogenesis: The Book's Editors Discuss Possible Futures

49

Geir Arild Espnes

Introduction

While the previous chapters of this book have presented the history and status of salutogenesis, this last chapter has the ambition to try analyzing possible futures of the salutogenesis orientation and model—and the sense of coherence—Aaron Antonovsky's own answer to the salutogenic question.

It is always a challenge to predict the future based on what we know today. At the end of the last millennium it would have been impossible to foresee the development of the scholarship on salutogenesis we see today. Some saw the model and orientation of salutogenesis as heading on a path of being obsolete. This has not happened, as the work of the editors and authors of this book attest. Salutogenesis is also alive and well in the conversations, plans, and happenings of key health promotion organizations and networks, including not least the Global Working Group on Salutogenesis of the *International Union for Health Promotion and Education (IUHPE)*. The Working Group is the "home" of the editorial group, and it has provided a stable arena for the extended work that the Handbook has required.

I write above that salutogenesis is alive and well, and perhaps the surest sign of the vitality of salutogenesis today is the global panoply of salutogenesis scholars from huge diverse backgrounds; just have a look through the author biographies at the close of this Section! What binds us despite the diversity? All who work with salutogenesis ideas share this: an almost desperate need for a theoretical foundation beyond the existing and limiting view of pathogenesis.

If the present healthy state of salutogenesis is reasonably well presented in this book, what about the future? This last chapter of the book is based on a running email conversation between the editors that extended over the final months of the book's production. Invited by me to discuss the future of salutogenesis, the Section Editors did so enthusiastically: Shifra Sagy, Bengt Lindström, Maurice Mittelmark, Monica Eriksson, Jürgen Pelikan, and Georg Bauer. This email conversation, taking place in the summer and fall of 2015, was an extension of many face-to-face (and a few Skype) discussions and debates amongst the editors (including Contributing Editor Torill Bull) that have taken place at these health promotion conferences and editors' meetings:

- Vancouver, Canada (IUHPE World Conference), June 2007.
- Helsinki, Finland (First International Research Seminar on Salutogenesis), May 2008.
- Helsinki, Finland (Second International Research Seminar on Salutogenesis), May 2009.
- Geneva, Switzerland (IUHPE World Conference and Third International Research Seminar on Salutogenesis), July 2010.
- Trollhättan, Sweden (Fourth International Research Seminar on Salutogenesis), May 2011.
- Trondheim, Norway (Fifth International Research Seminar on Salutogenesis), August 2012.
- Tallinn (Nineth IUHPE Health Promotion Conference), September 2012.
- Jerusalem, Israel (Handbook Editors' Meeting), April 2013.
- Tønsberg, Norway (Nordic Health Promotion Conference), June 2013.
- Bergen, Norway (Handbook Editors' Meeting), April–May 2014.
- Trondheim, Norway (Second International Forum for Health Promotion Research), August 2014.
- London (Handbook Editors' Meeting), November 2014.
- London (Handbook Editors' Meeting), May 2015.

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Given the extensive interaction over the course of the past 8 years, it is not surprising that the editors managed the quite direct and familiar tone that readers will note in the email discussion recounted below! To launch the email discussion, I initially posed four questions about the future of salutogenesis. The editors had a chance to read and reflect on one another's responses, then write addition thoughts, and this was repeated several times. The exchanges are cited verbatim (except for some formatting changes), preserving the informal and collegial atmosphere that we are privileged to enjoy (Fig. 49.3).

Geir A. Espnes Starts the Conversation

Let us start with a question that several discussions among us have touched on—health definitions. **Is the future work on salutogenesis in need of an explicit definition of "health"?** Let us first hear a former PhD student of Aron Antonovsky reflect on that question.

Shifra Sagy

I do not think salutogenesis is in need of a new explicit definition of "health." First, the core idea of salutogenesis is not to study the states of our human being at the two poles of "health" and "disease," but to study our existence on the continuum of "ease-disease." I trust that explicit definitions of the poles will be in contrast to this main basis of salutogenesis. I deeply believe we should leave the strict definition of health to other paradigms and be more attentive to the subjective evaluation of one's place on the continuum.

Second, as a project coordinator of Antonovsky's longitudinal research of the retirement transition (see Antonovsky, Sagy, Adler, & Visel, 1990; Sagy & Antonovsky, 1992), I was aware of his apprehension of the danger of tautology (Antonovsky, 1992) and the possibility of contamination between the two indicators: sense of coherence and health. In that "old" project we selected four facets

that seemed to be common to all states of health: pain, functional limitation, and prognostic and action implications. This operational definition, based mainly on self-definition and embedded in one's cultural context, is still considered by me as the most appropriate definition of health in the framework of the salutogenic paradigm.

Geir

Thank you Shifra—Bengt what are your reflections of the need of a specific health definition?

Bengt Lindström

My responses are NO and YES. **NO** in terms of Antonovsky's quest 'What creates health?' and the pursuit of what factors and processes create health—not health as such, but processes leading to health. In that sense, health could be undefined. However **YES** in terms of the fact that the evidence on his sense of coherence theory speaks for a strong connection to the dimension of well-being; quality of life, and mental health, but also indirectly to physical health since people with a strong sense of coherence manage physical limitations better. The construct as such is a social construct that relates to coherence between individual, group, and society, i.e., various social dimensions, thus

social health, and finally it is embedded in the fourth dimension of health of meaningfulness, existential health. For academia and research we definitely need to define the concepts we are working with. Therefore definitions such as health are needed also when we try to bend the curve and define the processes leading to better health, not what causes disease Antonovsky's concepts are directing the processes towards life, not merely counteracting risks, death, and disease as in the biomedical model.

Maurice Mittelmark

No! I have tried to address this very pointedly in Mittelmark and Bull (2013). I quote:

> "Rather than try to arrive at consensus for the health concept for health promotion research, we suggest that health promotion adapt a pragmatic approach accepting various conceptualisations and measurement approaches. We are quite happy to settle for a diversity of approaches, with well-founded conceptualisations of various aspects of health. This 'tapas table' rather than 'single dish' approach, which is the present reality, has led to a rich, varied empirical production of health promotion research. This varied production may well be seen as enriching—a variety of perspectives generally adds depth of understanding to a motif. Put another way, it is not only pragmatic, it is innervating, to accept that what researchers define as health is health, in the research context."

Geir

That was a pretty clear and strong point of view from Maurice, Monica what is yours?

Monica Eriksson

The vast majority of people are talking about health in a broad perspective. Therefore it would be a more important position to use the word well-being and define it, instead of the narrower concept health. At the same time, we must be aware that most people mean well-being when they talk about health and feeling good. The definition is also important in relation to health promotion. Today there is still the perception that preventing disease is the same as promoting health. Unfortunately there is still a need to explain health in the sense of salutogenic understanding.

Jürgen Pelikan

And I say: Yes, definitely! It is important to have a unifying paradigm (*sensu* Kuhn) with explicit definitions and understandings of core concepts and clearly defined

operationalization of these for a field to be able to produce comparative and cumulative research*See*, knowledge, and experiences. Only explicit definitions will allow scientists to relate to others theorizing empirical results, and this is an example of a precondition for doing sound literature reviews.

Of course, that does not mean that there has to be consensus on just *one* definition of health by all researchers of the field, even if that would be ideal for easy communication, cooperation, and coproduction of knowledge. There can be and will be different definitions, but these have to be explicit and it has to be clear exactly which one is used in a specific context of research or publication or practice.

For the field of salutogenesis, but also for other kinds of *health* sciences or practices, be it *health* care, *health* promotion, or public *health*, health definitely is a core concept, which has to be clarified and explicitly defined to allow cumulative research and knowledge production within and by a community of *health* scientists. In the case of the paradigm of salutogenesis, one underlying assumption is that health is produced or reproduced by a process or a multitude of processes, as diseases are by pathogenesis. Without a clear understanding of "health," salutogenesis cannot offer an adequately complex description of these salutogenic processes and their most important mechanisms.

For using the concept of (positive) health as a quality which is important for and can be observed on and by living, especially for human beings, it is important to be clear on how health differs from concepts like illness/sickness/disease, what kind of dimensions (e.g., physical, mental (including spiritual), social) and aspects (e.g., well-functioning, well-being, attractiveness) can be differentiated and how subjective lay and "objective" expert observations of health can be taken into account. I have made some propositions for that, which are published (Bauer, Davies, & Pelikan, 2006; Pelikan, 2007, 2009; Pelikan & Halbmayer, 1999) and can be followed or criticized. Of course, depending on the context and goal, health sciences and salutogenesis can and will work with either more narrow (clinical) or rather wider concepts of (public) health. As long as this is made transparent or even better also explicitly reflected on and argued, I see there is no problem for the future of salutogenesis. But to have a better future than the past, it would help if we supporters of salutogenesis would define more explicitly what specifically is meant by "health," which seems to be in the center of the paradigm of salutogenesis.

Geir

Georg, you are the last one to reflect on the need for a health definition that is based on a salutogenic theory—what do you say?

Georg Bauer

I say: Yes, otherwise we stay within the pathogenic frame-work or claim to promote health as something more than the absence of disease without a clear understanding of what we actually pursue. As illustrated throughout the book, most salutogenesis scholars consider the focus on positive health outcomes as a constituting element of the salutogenic orientation. Health promotion practice equally aims for promoting positive health. However, for now the salutogenic model only offers a vaguely defined ease-disease or order/disorder continuum and it has been justifi-ably questioned whether a continuum is the best conceptu-alization of the relationship of disease and health. Thus, to counter-balance the clear conceptualizations and measures of disease-related "health" outcomes, we urgently need clear definitions and measures of positive health. As posi-tive health is about pursuing a self-determined purpose in life, it will be reasonable to develop life-domain-specific measures thereof.

Maurice

It may seem at first blush that we have three answers: yes, no, and yes-and-no ☺. But I do not see it that way:

It seems Shifra agrees that a single definition is not needed, at least not a *new* one. She argues for AA's original definition, the ease/disease continuum. She states that oper-ationally, people will define their health in various ways depending on self-perception and culture. Then we have to accept various definitions of health.

Bengt calls for a focus on processes, but seems at ease with various ideas about the meaning of health as long as they are well-operationalized. I interpret him this way because he mentions various dimensions of well-being, and various dimensions cannot all be operationalized in a singu-lar way. I read Monica as in agreement with Bengt, that well-being is a broad construct, and that we do not need to define a "narrower" concept of health.

On to Jürgen, he answers the question "yes," but goes on to specify that multiple definitions are perfectly acceptable as long as each is well-operationalized. Is that not really a "no" answer? I answer "no," but I surely agree that various definitions, which I encourage, should be well-operationalized. Do Jürgen and I not agree?

Going on to Georg, who answers "yes," he actually calls for various definitions, for example, a definition of positive health that stands apart from the pathogenesis conceptions of health. If he accepts that we must live with health sometimes defined as disease and disability (a realistic position), and that we are in need, in addition, of a definition of positive health, Georg seems willing to accept at least two definitions

of health. So, his answer to the question is actually "no," in agreement with Shifra, a reluctant Jürgen, and an enthusiastic me.

Adding this all up, I think we are in agreement that health must be allowed to be defined in various ways, that health promotion needs to focus on positive concepts of health and well-being, and that whichever way a particular study/researcher defines health, it should be done rigorously. Or am I missing something?

Georg

Thanks Maurice, nice integration. Because I suggested life-domain-specific measures of positive health, I even support more than two definitions of health. As we probably all agree, that in the future, we do not need "an" explicit definition of health, but several, we should initiate discourses about diverse, culture-specific definitions of health for different purposes and contexts. Ideally, this discourse and formulating definitions should not only include researchers, but also those whose health we like to measure and improve.

Geir

Let us turn to the next question in this reflection on salutogenesis: **Do we think that salutogenesis is important to positive health developments, and not only to cope with stressful life situations? Can salutogenesis be lifted out of the misery thinking about health?** Let us keep the same order in reflections for this one.

Shifra

If we accept the above definition of health, we should see, of course, salutogenesis as a meaningful conceptual framework to positive health developments. Moreover, salutogenesis in its core idea does not relate to stressful life situations only, but to the whole spectrum of human exis-tence. In this way of understanding the salutogenic para-digm, no doubt it should include (and maybe enhance its interest) in positive health.

Bengt

Looking at the evidence, again, outcomes regarding people and systems that develop a strong sense of coherence clearly speak for improvement of health in all four dimensions. However, health as such is an asset, a resource

for life and in its character "positive." You know, I would never use the concept "positive health" because health as such is already positive. Only for pedagogical reasons can I use that construct. Also, stress needs to be considered here because stress is not to be seen as a negative condition, which the question implies. I therefore find two useless constructs in this question.

Maurice

To my opinion, the salutogenic model of health is not very helpful, while the more general salutogenic (assets for health) concept is helpful, but only in a very general way.

Monica

Yes, salutogenesis is important in view of positive psychology and the focus on well-being. The important thing is to explain that salutogenesis is so much more than Antonovsky's sense of coherence, it is a question about identifying and using the strengths of people at the same time you identify deficits and shortcomings and facilitate these. Even more important is to explain that there is no contradiction between a pathogenic and a salutogenic approach. As I see it, and also write in the book, salutogenesis is an area of knowledge, an approach, a way of learning, and working.

Jürgen

In rich post-modern health society it is assumed that also (positive) health, by becoming doable and technically feasible, can be intentionally enhanced, and not just disease is manageable and preventable by specific action. Therefore development of (positive) health has become an individual and societal issue, a remarkable asset on economic markets and a topic in public policy. Thus the question arises if salutogenesis, or more specifically for e.g., a high SOC, has more to offer than being a resource for successfully coping with omnipresent stressful life situations. This was an important motive of the original invention and development of this paradigm by Aaron Antonovsky in the past. But in the future, to be more relevant for all ongoing discourses on health, salutogenesis should demonstrate and publicize also its remarkable potential for developing positive health.

I think, as an answer to the second part of the question, salutogenesis can lift itself out of the misery thinking about health, when it really emancipates itself from the dominant medical focus on managing disease and individual risk factors (correctly the specific contribution of clinical science and practice to maintain health), and more radically starts to orient its research and practice at improving (positive) health and well-being by focussing on salutory factors and (positive) health outcomes in research and health promotion practice.

Georg

If we narrowly follow Antonovsky's conceptualization, salutogenesis is about coping with miserable life situations or about "surviving the toxic river of life"—leaving little space for looking at the bright side of life. Applying salutogenesis to positive health development—or joyful swimming in the river of life—is urgently needed.

Conceptually, Antonovsky only made half the paradigm shift: he moved from single disease risks to generalized resistance resources and from single disease outcomes to the ease/disease continuum. Now, we need to expand the role of resources to be also a source of immediately positive life experience—and good for resistance against stressors. On the outcome side, we need to consider that positive health is more than the absence of disease (pathogenesis) or just being at ease/order (salutogenesis a lá Antonovsky)—but includes aspects like actively pursuing a self-determined purpose in life, flourishing or happiness. Such a salutogenic model completed by positive health development will correspond to how health promotion practitioners and researchers already have adopted salutogenesis as mentioned above: as a full paradigm shift towards resources and positive health. This is reflected by the WHO Ottawa Charter of health promotion (1986) which defines health as a "... positive concept emphasizing social and personal resources, ... to reach a state of complete physical, mental, and social well-being." So if we intend to serve health promoters as the primary stakeholders using and disseminating salutogenesis, we better develop this concept to include positive health development.

Further, such completed salutogenic models will much better correspond to real-life experience. Surely, our life is partly stressful and sometime miserable—but also in large parts joyful. If we acknowledge that "health is created and lived by people within the settings of their everyday life; where they learn, work, play, and love" (WHO, 1986) we should also be able to study and promote joy, growth, thriving, and flourishing of this everyday life experience. This will lift us out of a paternalistic approach to ameliorate miserable lives to supporters of self-determined living.

Georg

So, overall we all seem to agree that salutogenesis could be important to positive health developments, although we name the desired outcome differently: positive health (Shifra, Jürgen, Georg), health as an asset/resource of life (Bengt), assets for health (Maurice), well-being (Monica). Referring back to the above suggested discourses on definitions of (positive) health, it will be interesting how far these differences in terminology also reflect different conceptualizations of positive health development. Another open issue is if "positive health" only becomes "doable and technically feasible" in a rich post-modern society as suggested by Jürgen. Or if we shouldn't acknowledge that probably most if not all human beings even in poorest societies have at least some positive health experiences on an everyday basis. This would urge health promoters in all contexts to always simultaneously study and address both misery/disease and joy/health as coexisting sides of the human health experience.

Maurice

I like Georg's summary and I think that he does well in capturing the essence of our contributions on this question. Regarding the possibility of positive health in non-rich, non-post-modern settings, a firm tenant of the positive deviance (optimal outlier) approach to health promotion is that in all settings, even the harshest, there are people who manage to thrive (positive health), and the challenge is to learn from them, while NOT accepting the inevitability of harshness.

Geir

Thank you, all of you. Let us than turn to the third of our four questions: **Antonovsky made a proposition years ago: salutogenesis should be a theory for health promotion. Why has this not happened? How can salutogenesis be more than an idea at the edge of the universe?** Georg—what do you say?

Georg

The main problem is that the salutogenic model as developed by Antonovsky only is a partial model for health promotion. Primarily, he developed a model around the sense of coherence (SOC) which is a challenging combination of the psychological concept of the sense of coherence and the physical or biophysiological concept of (negative) entropie or (dis)order underlying his (dis-) ease continuum. This creates the deadlock situation that most empirical salutogenesis research sticks to sense of coherence as a personal health resource that unfortunately provides little guidance to the settings or whole systems approach of health promotion. In this situation, the field of health promotion practice turns to the general salutogenic orientation—legitimizing the focus on resources and positive health outcomes without providing an appropriate theory.

To completely cover the positive side of health development in the future, the salutogenic model should be expanded to include all three biopsychosocial processes of health development. Further, as suggested above, the outcome side of positive health also needs to be clearly defined and measured beyond the vague (dis-) ease continuum. Only then, salutogenesis fulfills the promise to be not the mere mirror-term but mirror-concept of the well-defined concept of pathogenesis that already covers the full range of biopsychosocial disease development. In the future, salutogenesis should be integrated into a complete health development model as suggested earlier (Bauer et al., 2006) that can grasp the full human health experience and the relationships between salutogenesis and pathogenesis.

Shifra

I trust salutogenesis is not "an idea in the edge of the universe." For me it is in the midst of the research of health and social sciences, but has its representations in different concepts and models (see for example, our chapter on positive psychology and salutogenesis in our Handbook). The same answer is relevant when we relate to health promotion. Another explanation for health promotion could relate to the broad scope of salutogenesis. It appears that research in health promotion, as in health in general, is based more and more on ad-hoc, reduced and limited theories, and not on wide, comprehensive theories.

Jürgen

To answer your question Geir, we have to proof first if we do agree on its underlying assumption that adequate reception of salutogenesis as a theory in health promotion (research, practice, policy) has not happened since 1994 or 1996. The different chapters of this Handbook give a rather differentiated answer to this assumption, which of course

depends on criteria used for looking at the evidence for this assumption, e.g., lip service to salutogenic orientation, use of salutogenic model, or of the concept and instrument of SOC.

But if we accept the assertion of failure, there are two or three different kinds of answers to this question. We either can attribute the failure to the quality of salutogenesis as a theory or to the perception and acting of the health promotion community, or both. Either salutogenesis has not been offered as a theory at all, or it is not an adequate theory for health promotion, or the health promotion community is not aware enough of salutogenesis as a theory, or is not interested at all to have a grand underlying theory. Or the failure can be attributed to a mixture of these deficits.

Indeed, I have the impression that there is not yet a real theory of salutogenesis. There definitely exists a paradigm offering some basic assumptions for a salutogenic orientation, but that may be too loose and too general to be a powerful theoretic orientation for health promotion. There also exists a salutogenic model, but this very complex model has not even been taken up by Antonovsky in his later writing himself or by nearly anybody else as well (cf. Mittelmark & Bull, 2013); in a way this model seems to be a dead end. Of course, there is the sense of coherence as a concept and instrument which has been taken up widely also by researchers which would label themselves as health promoters. But the sense of coherence is a much too narrow and biased concept to serve as a theoretic foundation of health promotion as a field. It just is one of many pieces in a more universal theory of salutogenesis. With these weaknesses of salutogenesis in mind it is not so surprising that the community of health

promoters did not take up salutogenesis enthusiastically as its foundation.

Thus, for salutogenesis to be more than an idea at the edge of the universe, the community of salutogenic researchers has to put its forces together, preferably in cooperation with health promoters, to work on the missing salutogenic theory. The knowledge collected in this Handbook will be a perfect basis for this endeavour.

Bengt

When the Ottawa Charter came it was a political-policy-principle statement without a theoretical foundation and in the enthusiasm, theory was forgotten (although maybe considered as Kickbusch said last year); this has been the Achilles heel of health promotion. You can run in any direction and base it on whatever you like and call it health promotion. Many just continued as before but labelled it health promotion. Antonovsky's attempt to lead a discussion on the matter with the core of health promotion [experts] at WHO Copenhagen, in August 1992 was well received. However his sudden death never made it possible to follow it up. As you know we now have made strong efforts to show how well they match each other (Figs. 49.1 and 49.2). There is a need for theoretical underpinning to make health promotion researchable and *comme il faut* on the Parnassus of Science. Without theory we do not know what we do or what to measure—salutogenesis suits health promotion and sense of coherence both ideologically and theoretically. I also think a lot of people never have integrated and understood the essence of salutogenesis.

Fig. 49.1 Health determinants, settings and life experience, and quality of life
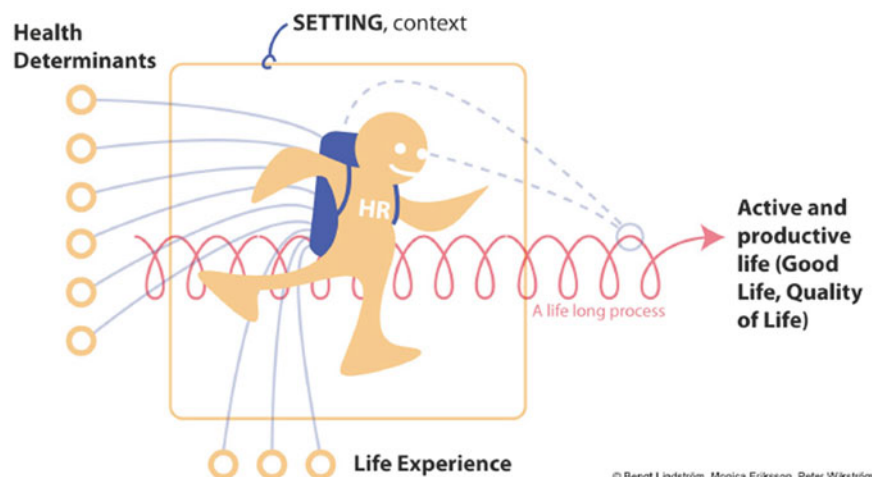
Fig. 49.2 Generalized resistance resources, life experience, and quality of life
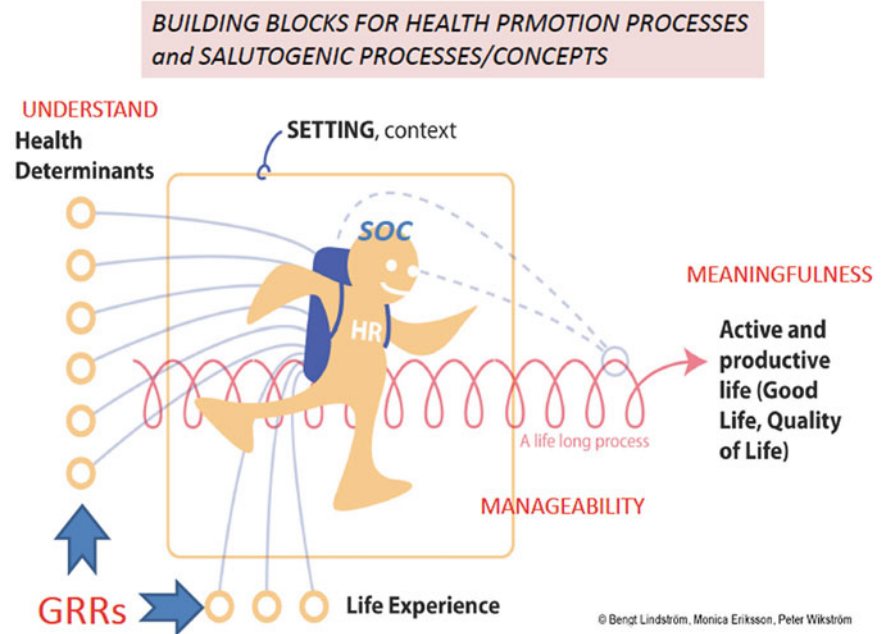
Fig. 49.3 The editors met at Jerusalem in April 2013

Workshop – Salutogenesis book

Jerusalem, April 18th-20th

Thursday, April 18th

- 16:00-17:30 Introduction round; Update, activities of the IUHPE Global Working group on Salutogenesis

- 17:30-19:00 Short Skype meeting with publisher Khristine Queja (Springer) in New York; Overall organisation of the book

- 19:00-21:00 Dinner, walking tour in Jerusalem

Friday, April 19th

- 9:00-13.00 Chapters' placements in Sections and chapter lengths; Proposed new chapters; Authorships and first authors; Editors' roles and responsibilities

- 13:00-16:00 Lunch and rest

- 15:00-19:00 Page proofs – authors and editors responsibilities; Publication model; Production time line

Saturday, April 20th

- 9:00-13:00 Instructions to authors; Distribution of author's copies; Book and SWG issues arising

- 13:00-15-15:00 Lunch and rest

Maurice

When I interpret your question, I interpret it in this way: Can the power brokers in the health arena (the doctors and the healthcare estate) ever take Salutogenesis seriously? I have my doubts. Misery pays the bills, not happiness. No one visits the doctor to increase their happiness. So, the answer is no, in the medical sciences: no one visits the doctor to increase their capacity to cope with life. However, if we can get the social sciences interested, the answer could be yes... just see what positive psychology has done to help liberate psychology from its (modern) self-identity with illness.

Monica

When Antonovsky suggested the salutogenic theory I strongly believed, he hoped that the theory would be the basis for health promotion. Why not happened to a greater extent can only be answered by leading representatives of the health promotion movement. Kickbusch said in Trondheim in 2014 (Second International Forum of Health Promotion Research) that they "forgot" to discuss the theoretical basis for health promotion when the Ottawa Charter was drafted. It is never too late to rise up early ... it's everyone's duty to initiate the issue again in different contexts, at different levels and to different groups of people, particularly in policymaking. I do not agree with the statement that salutogenesis has not been accepted and implemented in practice. There are fields and areas where the salutogenic approach has been implemented, but not systematically, we have no overview of that, we need to systematically investigate, collect data, and describe the situation. As far as we do not have this kind of picture we feel that the salutogenic approach is not implemented at all. In addition, salutogenesis is more than a philosophical issue about the health continuum.

Maurice

I can see now, after having read the others' comments, that I should have clearly separated my thinking along the lines of the two questions. First, why has salutogenesis not become *the* theory for health promotion? My answer is that health promotion is a transdisciplinary arena of research, policy, and practice, not an academic discipline, and that no academic theory can dominate in a truly transdisciplinary community. Therefore, the answer to the question, how can salutogenesis be more than an idea at the edge of the universe, is another question: where in our transdisciplinary universe do we wish to see salutogenesis positioned?

At the center, as AA championed? As each person's position is her center, we could never hope that salutogenesis would be understood by a large majority of health promoters to be at the center. There are many ideas about where the center is/should be... and that is how is should be and must be. Even we salutogenesis enthusiasts occupy only approximately similar positions in the universe. Salutogenesis can never be THE theory of health promotion. Neither is it at the edge of the universe. It has a centered position for everyone writing this book. The club of enthusiasts is growing, but it will always be just one club amongst many.

Georg

Well Maurice, the only problem is that Antonovsky has chosen the mirror-term salutogenesis to claim that his/this theory is the mirror-concept of pathogenesis—and raised the hope that this theory would support a paradigm shift away from pathogenesis. Thus, salutogenesis is out there as more than just "one academic theory." As reflected in this book, salutogenesis indeed has been happily received by many health promotion researchers and practitioners at least as providing a central, salutogenic orientation. To me the challenge remains how to advance salutogenesis from a fuzzy orientation towards a sound, transdisciplinary theory base for health promotion—allowing for diversity of approaches.

Geir

Thank you Georg. Let us then turn to the last question before we wrap up the chapter. This question is a many-faceted one—but let us hear your reflections: **Is there a future for salutogenesis in disciplines, or in interdisciplinarity? Medicine? Psychology? Sociology? Technology? Ecology (climate change)? Is there salutogenesis without a sense of coherence? Is there sense of coherence without salutogenesis?** Maurice, how do you see this?

Maurice

Well, health promotion is still mostly about risk factor reduction, even if the rhetoric is loftier. I think the best chance is a model like Bauer et al.'s (2006) model combining pathogenesis and salutogenesis: making a health promotion theory that is sufficiently inclusive to attract many in the field. Such a model could, I guess, also make inroads in medicine. When it comes to a future for salutogenesis: not as the salutogenic model of health... it is dormant. But the

salutogenic umbrella could be used in many disciplines as a broad concept for positive approaches to improving social life. On salutogenesis without sense of coherence I will say this: people are already writing about a "theory of the sense of coherence" and I think the sense of coherence now has a good life of its own... it does not need the "mother salutogenesis" to survive and even thrive. Also, the salutogenic concept (umbrella) can do well without the sense of coherence. My answers are yes, and yes.

Monica

As I see it, this question is a wrong question—there is no future without the salutogenic perspective. Likewise salutogenesis is more than the sense of coherence. We know today that the sense of coherence is a multidimensional construct, i.e., consists of more dimensions than the three that Antonovsky mentioned. There is a potential to explore and implement them in health promotion and disease prevention. A new area in my opinion is to position salutogenesis into sustainable development, in particular how the social dimension of sustainable development can be related and benefit from the salutogenic framework. Equity and health equality are two of the most pertinent issues when talking about social sustainability.

Jurgen

Yes, but only if salutogenesis becomes a more disciplined field itself first, with a wider theory and a broader repertoire of methods and instruments. Then it will have more to offer to be a respected partner in joint work with other more developed disciplines. These disciplines definitely lack a sound, complex, and sophisticated perspective on (positive) health. Therefore there will be sufficient demand for that supply, (even if medicine suggests to already have the answers), since health in the future is becoming an even more prominent issue and problem individually, collectively, and globally under the difficult conditions of late modern world society at our endangered planet.

To the two more narrow questions my answer is, there is some overlap of the two concepts, the sense of coherence can be understood as a subset or element of the wider set of salutogenesis, but since salutogenesis is either a rather loose paradigm or a very complex model, and there are different partly contradictory hypotheses about the nature or impact of the sense of coherence already by Antonovsky, it is difficult to have a good systematic understanding of the relationship of the two. But empirically it can be observed that a concept like the SOC, which offers an operationalized instrument, a

technology in the sense of Perrow,[1] can have a successful career in science and practice, while its underlying paradigmatic background sinks into oblivion.

Georg

Human health and its development are clearly multidimensional biopsychosocial phenomena happening anywhere from submolecular to global socioecological levels. Only a transdisciplinary conceptualization of health and of health development processes building on the actual, rich human health experience can grasp this complexity. As argued above, a completed salutogenic model can at least cover the positive side of health development. Currently, the single-minded or sometimes even simple-minded focus on sense of coherence as seemingly being the main or only answer to the salutogenic question currently constrains this potential of salutogenesis. At this time, it could help to ignore the sense of coherence for a while to trigger fresh ideas and results around salutogenesis as a complete, socioecological systems theory of health.

Geir

Finally Shifra, how do you see it: Is there a future for salutogenesis in disciplines or interdisciplinarily?

Shifra

Here we come to the solution (in my eyes). At the dawn of the third millennium, interdisciplinary research is a new challenge for scientific endeavor in general (e.g., Gruenwald, 2014) and particularly for salutogenesis. I trust that the future of salutogenesis lies in "allowing" it to develop beyond health and to move towards an interdisciplinary study. Moving beyond the perspective of salutogenesis as a model that focuses on health to a paradigm that can explain other aspects of life (social relations, ecology and geography, technology, conflict studies, and others) can give a new growth.

Geir

Are there any concluding remarks on the future of salutogenesis? Shifra, you first.

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[1] Charles B. Perrow is an emeritus professor of sociology at Yale University.

Shifra

Aaron developed the concept of the sense of coherence as HIS own answer to HIS salutogenic question—who is the successful "coper" (with life or with a specific stressful situation). The sense of coherence, and its useful measurement tool, has become the most well-known concept of the salutogenic paradigm, sometimes even without any reference to the theory. However, Antonovsky himself saw the sense of coherence as only one possible answer to salutogenic questions. It is our mission in the future to broaden salutogenesis beyond its common question of stress–health relationship to include other salutogenic questions and to look for other answers as well. Thinking in a new interdisciplinary view about new salutogenic questions will bring salutogenesis to a new stage which will better fit our new millennium.

Monica

We have to continue to emphasize, examine, explore, and further describe salutogenesis and its core concepts to be used in policymaking and health promotion. Theoretical considerations and explanations are still needed, the theory needs to be further developed and expanded, i.e., relate it to other similar constructs and theories. There is a need for a systematic overview how this framework has been implemented in different contexts; the picture is to date unclear.

Georg

Our diverse perspectives raise hope that there will be diverse futures for salutogenesis: continuing to be used as an umbrella/perspective/orientation in the health sciences; expansion of its application to other interdisciplinary fields such as sustainable development, social relations, geography, etc.; and last not least as a sound, completed theory covering the full range of health experience of human beings. The last development is urgently needed to fortify the flourishing field of health promotion with a sound, diverse theoretical, and empirical basis.

Geir

Jürgen, you will have some of the last words in this discussion. Can you sum it up?

Jurgen

As I see it, salutogenesis continues to be a needed and resourceful paradigm for research, practice, and policy of health and for tackling the health gap in the twenty-first century. To become more influential in the future, salutogenesis has to widen, radicalize and further develop its theoretical base and methods. The knowledge collected in this Handbook will be an excellent base for this endeavour.

Shifra

It is wise to see models, theories, constructs, and even ideas as heuristic devices, not as holy truths, as Antonovsky wrote in his last paper (Antonovsky, 1996, p. 246). I believe that our Handbook has succeeded in following this advice. This book includes not only descriptions of the theory and research focused on the past; in many of the book's chapters you can find suggestions for new productive models, constructs, and ideas, which, in a way, grow out of the salutogenic paradigm, but have a life of their own.

Salutogenesis was a deep breakthrough in thinking and research in health some 30 years ago. To think salutogenically today, however, is quite obvious. This is the point that we have to advance. I am glad and grateful that we have done it in our Handbook. I trust Aaron would have been satisfied with these developments.

If I may end with some personal words: Aaron was my unique, wise, creative, and supportive teacher. He carefully used to teach me HOW to think and compelled me to re-examine my way of thinking according to "scientific rules." He never told me WHAT to think. I hope we have succeeded in transferring this spirit to our readers.

Geir

I am truly grateful to have been part of this insightful discussion and wish us all the best of luck!

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