

Chapter 14

How to Manage with Related Concepts of Research on Wellbeing and Health – A Theoretical Review with Special Reference to Later Life

Sakari Suominen

14.1 Introduction

The book at hand provides an overview of relevant health and wellbeing concepts that are also applicable in research on later life. Within the area of research on wellbeing an abundance of closely related concepts exist. This chapter comprises of a subjective review of the literature in order to clarify the internal relationships of these concepts and to account for their similarities and differences. Generally, the concepts show the same intellectual content and are similarly used regardless of the stage of the life cycle in focus. However, with increasing age some aspects tend to become more and others less emphasised, an issue that is further elaborated on prior to the concluding discussion.

14.2 Theories of Wellbeing

Primarily, the concept of wellbeing can be approached from the perspective of ‘level of living’, which solely refers to the material dimension and does not take into account the subjective experience of resources. However, wellbeing can further be conceptualised according to theories about resources or theories about needs. Ontologically and epistemologically this refers to the question of whose definition of wellbeing do we use and on the other hand on whose observations should we rely for research on wellbeing. From an ontological perspective, completely subjective research on wellbeing is hard to justify, i.e. research where the definition of the

S. Suominen (✉)

Department of Public Health, University of Turku, Turku, Finland

e-mail: sakari.suominen@utu.fi

Nordic School of Public Health NHV, Gothenburg, Sweden

© Springer Science+Business Media Dordrecht 2015

F. Nyqvist, A. K. Forsman (eds.), *Social Capital as a Health Resource in Later Life:*

The Relevance of Context, International Perspectives on Aging 11,

DOI 10.1007/978-94-017-9615-6_14

concept is solely made by the person(s) being studied. A number of arguments in favour of this restriction can be given but particularly the difficulty to carry out comparative studies should be mentioned, since necessarily we do not know how the various subjective definitions differ. Moreover, in ontologically subjective research on wellbeing, a manic period of a bipolar disorder or the usually pleasantly perceived state of becoming drunk, as examples, would have to be classified as states of wellbeing, although any practical knowledge resolutely indicates that they tend to take another shape, often quite quickly, and might even be reversed. So it can be concluded that at least to some extent the concept has also to be objectively and not merely subjectively defined before any kind of adequate research can be carried out (Karisto 1984).

Let us take a look at the situation from an epistemological perspective. Should wellbeing be reported by the person being studied or should a more objective approach be taken? Here, no clear answer can be formed and it can be cautiously concluded that both perspectives are needed since wellbeing should, at least to some extent, be based on subjective perceptions. On the other hand an individual is not always fully aware of external conditions that might influence her/his judgement. Hence, we can conclude that subjective evaluations are of utmost importance in research on wellbeing but they alone are not fully sufficient and also other sources of data of a more objective character, as e.g. on housing area, may be needed. Finally, the subjectivity of the data has to be kept apart from the methodology by which it is collected. Use of survey methodology does not necessarily imply that the data is subjective in an epistemological sense. We can for instance ask a respondent about her/or his income or on the other hand about her or his level of exhaustion. In the former case information can be influenced by subjective evaluations but an objective counterpart can also be found, i.e. the correctness of the data can be checked from some other source, whereas in the latter example this is not actually possible (Karisto 1984). Also another remark concerning the methodology seems worthwhile. When wellbeing is studied from an epistemologically subjective perspective, it is a known fact that respondents tend to report more positively than they would do in a totally free and unblocked situation. The phenomenon is called the 'happiness wall'.

Inclusion of subjectivity into research on wellbeing is embodied in the Quality of Life (QoL) approach and comprises, as already referred to above, the two perspectives of resources (Johansson 1970) and needs (Maslow 1968), of which the latter represents the most subjective orientation. However, even in this measure, the criteria for and definition of wellbeing are given by the researchers and not the individuals being studied. Although theories about needs have been developed gradually and partly independently of theories about resources, it is clear that the resource perspective leaves the question of fulfilment of needs unsettled, which has stimulated the development of theories about needs. Moreover, the value of subjective data is indisputable in contemporary research on wellbeing. There are various scales by which QoL is empirically measured, resulting in a number of acronyms, for instance, the scale comprising 100 items (WHO-QOL 100, WHO 1995), or its short version originally developed by the World Health Organization

(WHO), which comprises 26 items (WHO-QOL-BREF (2013), www.who.int/substance_abuse/research_tools/whoqolbref/en/).

In a more narrow sense QoL can solely refer to an individual's subjective experience of her or his life without any direct connection to the either resource or need-oriented theories on wellbeing mentioned above. Conceptually wellbeing can further be divided into a more cognitive dimension called life satisfaction and into a more emotional dimension of happiness (Veenhoven 1984). The former concept is a general and more persistent evaluation of how life has corresponded to one's expectations and how well one has been able to fulfil one's anticipations as a whole, whereas happiness is understood as a predominantly emotional, intense, and also more transient phenomenon. Both of these dimensions can be considered to represent subjective wellbeing, particularly mental wellbeing.

14.2.1 The Theories of Resources and the Theories of Needs

The central resources comprise (1) Health, (2) Food, (3) Housing, (4) Conditions of Growth and Development and Family Relations, (5) Education, (6) Employment and Working Conditions, (7) Economic Resources, (8) Political Resources, and (9) Leisure time and Recreation (Johansson 1970). According to this perspective wellbeing is a state where most of the central resources are at the individual's disposal.

The central needs can be categorized according to e.g. Maslow (1968) and Alldardt (1975) as comprising i. Basic physiological needs, ii. Social needs or needs related to interaction with other people, and iii. Needs related to self-realization. According to this perspective wellbeing is defined as a state where the central needs are met.

Although the two ways of defining wellbeing can show correlations in empirical studies they do not necessarily always coincide on an individual level. For example, identical level of income can end up in diverging perceptions of the sufficiency of it on an individual level. On the other hand, even meeting central needs and thus achieving some level of perceived wellbeing does not necessarily imply that all central resources are at the individual's disposal. Von Wright (1986) still distinguishes between needs and wants and sees the former ones as enabling personal development whereas meeting the latter ones more or less results in repetition of the same addictive kind of behaviour without leaving room for any kind of true development.

Nevertheless, if an individual perceives that all of her or his central needs are being met, the situation in the long run comes very close to or is identical to high QoL. Hence, it could be concluded that wellbeing should empirically be measured according to the theories of needs, without consideration to the resource perspective. However, from the viewpoint of social policy this is not necessarily the case since measuring wellbeing solely by level of fulfilment of needs does not reveal much about the underlying factors in situations of societal transition. Should one for instance find that the number or level of unmet needs within the field of social relations have increased several completely different mechanisms can theoretically

be responsible for this development. The change can depend on decreasing arenas for voluntary social interaction in the housing areas, from a harshening climate in society, from increasing competitiveness and diminishing confidence between individuals, as well as from deficits in the perceived self-worth of senior citizens. If wellbeing again is measured according to the theories of resources, the data might also be useful in exploring causes or mechanisms behind the changes. For example, an increasing share of the population reporting insufficient housing areas might be used as guidelines for social policy intervention strategies. Hence, one could say that even if assessment of wellbeing would be carried out according to the perspective of needs, it would be useful to extend the data collection to also include aspects of resources.

This conclusion is consistent with later work (Doyal and Gough 1991) that combined aspects of both theories of resources as well as theories of needs. According to them resources can only be understood as resources when an individual perceives having some kind of control over them. This means that resources can actually be understood as resources first after they can be used for the fulfilment of needs. A similar aspect is also given by Sen (1980) and Nussbaum (2000) who apply the concept of capability. The difference compared to the former perspective by Doyal and Gough is that the capability approach is more sensitive to community resources and therefore could be seen as more universally applicable in research on global wellbeing. In this context it is worth mentioning that a number of indicators of human wellbeing on a macro-level exist as e.g. the Human Development Index (HDI), Happy Planet Index (see reference list) or the Social Progress Index (see reference list).

14.3 Social Capital

Social capital is a concept originally introduced by Bourdieu (1972) who distinguished between social, economic and cultural capital and made the assumption that they can be changed reciprocally when wealthy individuals meet in specific situations and shape their capital to correspond to their personal needs and expectations. More recently, the concept was introduced, with a modified meaning, into research on wellbeing. Coleman (1988) regards social capital as a more neutral resource that, depending on the actor, can be used for constructive or destructive purposes. Putnam again refers to the collective value of all social networks as social capital and the inclinations that arise from these networks to do things for each other (Putnam 2000). Thus, social capital bears a resemblance to the previously mentioned concept of capability (Sen 1980; Nussbaum 2000) in the sense that it can also be understood as a quality of the community rather than the individual. Empirically, the concept of social capital has been widely applied in health-related research. There are a number of empirical findings illustrating a positive association between social capital and in various ways determined good health (e.g. Kawachi et al. 2008). The mechanisms mediating this association are relatively unknown, however, possible explanations are discussed in Chaps. 2, 8 and 13.

14.4 Health

The definition of health by the World Health Organization (www.who.int/about/definition/en/print.html) as being ‘a state of optimum physical, mental and social wellbeing and not merely the absence of disease or infirmity’ brings this broad concept of health close to the state of wellbeing determined according to the theories of needs. However, in order to be able to orientate in the myriad of concepts, health deserves further clarification.

Health can be categorized to three main dimensions which are (1) biomedical, (2) perceived, and (3) sociological or social health (Purola 1971). The first can also be called the apparatus-error model. In this model all functions of the body including mental processes are likened with functions of a technical machine. A sharply delineated boundary between health and illness is assumed to exist and consistently with this the health of an individual can be determined by measurements based on natural sciences, such as laboratory tests or x-ray examinations. Sometimes a sharp boundary can truly be found as in the case when a bone fracture based on x-ray imaging can be determined with certainty or excluded. However, mostly such kinds of strict boundaries do not exist and they are above all determined by results from a number of prospective studies on the increase of the risk of an outcome in relation to some preceding risk or protective factor. As simple examples, the normal values of blood pressure or total fasting blood cholesterol can be given. The risk factors are assumed to be mostly normally distributed and even from a layman’s perspective it is obvious that a small shift in any direction cannot be decisive for the final net health effect.

Perceived health or subjectively rated health (SRH) can also be called psychological health, but has strictly been kept apart from mental health (Lehtinen 1991). The most important practical consequence of this dimension of health is that it steers the patients’ urge to take contact with the health care system. So even if the general level of patients’ knowledge about health and illness is increasing, the perception of new symptoms or a change towards the worse remains the principal reason for contacts with doctors or other health professionals. In practical life, however, irregularities or exceptions to the usual pattern by which help from the health care system is sought are encountered. The lack of perception of illness can constitute a hindrance in treatment of certain mental disorders, as for instance in the case of the manic period of a bipolar disorder when the patient does not feel motivated for any kind of treatment. On the other hand, the threshold for the perception of illness can also be low, which again can take expression as somatisation disorders in which disturbing symptoms occur but tests are unable to help to come to a definite medical diagnosis.

The dimension of sociological or social health encompasses functional aspects of health. According to Talcott Parsons’ (1952) classical work of medical sociology the general anticipation is that the patient, in order to be entitled to the role of the sick, is expected to perceive her or his state as an unwanted one and is willing to accept treatment and hopes to be cured. In most cases the medical diagnosis alone cannot reveal sufficient information about the patient’s capacity for activities of

daily living or work. This depends on the fact that the same medical condition as for instance the same degree of spondylosis of the spine determined by x-ray imaging can end up with greatly diverging functional limitations for two different patients. Additionally, the final functional capacity in daily living or work is also based on demands from the external environment and hence, no absolute measure is possible. For instance, losing a limb can result in totally different outcomes in activities of daily living or working capacity depending on the housing characteristics or physical demands from work. The subjective perception of a functional limitation is also called a handicap.

Further, health can be divided into somatic and mental health although, this division has also been questioned and is not self-evident. Without taking any definite stand in this question it can on a more general basis be said that both somatic as well as mental health can be considered to have biomedical, perceived or social dimensions (Lehtinen 1991). These dimensions correlate empirically within one individual but they also show independent variation and all combinations can theoretically be constructed. In a hypothetical situation where all the medical tests would be at the disposal of an individual, they could be classified as healthy or ill on basis of the test results. An individual may or may not have felt healthy or ill and have experienced some kind of functional limitation prior to the announcement of the test results. An unobserved cancer in an otherwise healthy individual can, when detected in a screening test, be given as an example of poor biomedical health in spite of good perceived health and social health before the announcement of the test results. Knee arthrosis can gravely impair the perception of health but some individuals can in spite of that keep up their normal functional capacity. Finally, complete medical recovery from myocardial infarction does not, without supportive measures, necessarily imply complete psychological or social recovery. The patient might be anxious about recurrence and perceive her/his health or working capacity as impaired.

Concomitantly with the development of the medical diagnostic tests, even aspects of mental health can gradually be made more and more visible through this technique, such as with Magnetic Resonance Imaging (e.g. Sheline et al. 2012). This could be characterised as representing the biomedical dimension of mental health. As in the case of somatic health, a person can biomedically be in good or poor mental health and regardless of this, perceive her health as being unaffected or poor (perceived health) or functionally limited or unlimited (social health). In this context, it is worth pointing out that perceived good health, regardless of whether the somatic or mental one is dealt with, does not necessarily imply a perception of life satisfaction or happiness. Here, it seems justified to refer to the definition of mental health by Freud with the words 'Lieben und arbeiten – to love and work'. This definition can be interpreted as meaning that a person in good mental health is capable of interacting with other people, including formation of a love relationship, but is also capable of interacting with the social system she or he lives in and is capable of productively taking part in activities that the surrounding system perceives as useful and hence is called work. However, neither of these forms of interaction necessarily implies life satisfaction or happiness, although being successful in them

can increase the probability of such kinds of outcomes. Hence, mental health comes conceptually close to functional capacity, which likewise does not necessarily imply life satisfaction or happiness.

It is easier to integrate health into the theories of resources than to the theories of needs. The same does not, however, apply to the concept of social capital. Partially the reasons are obvious, since health, as shown earlier, itself constitutes a principal resource category, but this is not the only explanation. Health is also easier to be interpreted as a resource resembling other forms of resources in that it can be strengthened or weakened by external measures. Regardless of this, it is difficult to understand health as a need of its own or as part of the three central needs mentioned earlier, i.e. basic physiological needs, social needs, and needs related to self-realisation. It would be doubtful to claim that an independent need of health existed since health tends to be taken for granted until the possibly arises that it might be lost or that it is diminished. However, human beings possibility do not perceive a strong general need towards healthiness but mostly only an urge to take care of their illnesses or symptoms, should such appear. Health can also be understood as a general resource enabling satisfaction of central needs. In contrast, social capital again can be integrated into both of the theories on wellbeing without difficulties since it can be understood likewise as a resource by means of which social needs or needs related to self-realisation can be fulfilled.

14.4.1 Health-Related Quality of Life

Health-related quality of life (HRQoL) studies represent a subgroup within QoL research with special focus on the influence of health on this life domain. A number of scales for assessing HRQoL have been used, such as the Nottingham Health Profile (NHP) and the Sickness Impact Profile (SIP), the Medical Outcomes Short Form 36 (MOS SF-36 and its free version RAND 36 (2013), www.rand.org/health/surveys_tools/mos/mos_core_36item_terms.html), just to mention a few (Anderson et al. 1993). Conceptually HRQoL comes very close to or is identical with the broad definition of health comprising all three dimensions described above or also wellbeing determined according to the theories of needs. A very large number of empirical studies on QoL and HRQoL have now been carried out. The concept of Quality Adjusted Life Years (QUALY, e.g. Boyle et al. 1983) makes an attempt to combine aspects of HRQoL or QoL and the concomitant quantity of life years gained or lost by means of an intervention.

14.4.2 Health, Social Capital and Later Life

With increasing age the pure biomedical dimension of health, i.e. the number of chronic illnesses influencing functional capacity and thus perceived health and HRQoL tends to increase, which might hamper collection of subjective research

data and give more weight to observational methods. Further, with advancing age huge differences in all domains of health tend to become apparent as e.g. in the case of social health. Some people running marathons continue even after their 80th birthday while others are forced to leave working life as a result of functional limitations before the age of 60. Moreover, along with getting older, the need for help provided by external resources is emphasised as the associated internal resources becoming weaker. This is particularly seen in social capital research on later life (e.g. Nyqvist et al. 2013). In interpreting this data we should keep in mind that when evaluating their own wellbeing and health individuals tend to achieve a more comparative perspective, that is, that they would see their own health level as reasonably good or bad compared to other people of the same age. Such comparative perspectives can even work when someone's health is not optimum, when they have health-related functional limitations or they suffer from long-term illnesses (Ferraro 1980; Jylhä 2009).

14.4.3 Life Management

The concept of life management is also very important to this discussion. Personal abilities and readiness to utilise resources is more and more coming into focus. According to the theories, personal qualities that differ between individuals enable a good or suboptimal use of resources at their disposal. Many of the theories have been oriented towards health research (Antonovsky 1987; Kobasa 1979) but also more general theories of scientifically high quality have focused on the ability to solve the problems of everyday life, i.e. with coping (e.g. Bandura 1977). Generally good life management can be understood as a personal resource increasing the individual's probability to gain an experience of wellbeing but this does not necessarily follow. A person with good life management might be very motivated to solve her or his problems and in the long run gain life satisfaction or happiness but nevertheless can be very unsatisfied or unhappy with her or his present situation.

A schematic overview over the concepts according to increasing subjectivity on the one hand and an increasing focus on health on the other hand is given in Fig. 14.1.

14.5 Discussion

In research on wellbeing a great number of related concepts exist. This chapter is an attempt to form an overview over these concepts in order to clarify their internal relations, which can be used as a framework when reading this volume. Nevertheless, the author is aware of the fact that also diverging interpretations and terms can be found.

Later stages of life can be studied from three main perspectives, i.e. disengagement theory (Cumming and Henry 1961), continuity theory (Atchley 1989), and activity theory (Havighurst 1961). Wellbeing plays a central role in the latter two

The perception of wellbeing or health is strongly dependent on the context. As mentioned earlier, with increasing age people tend to gradually apply a more comparative perspective in relation to their peers when making evaluations of their own situation (Ferraro 1980; Jylhä 2009). Yet the societal context also plays a role. One could make the assumption that an environment rich in social capital particularly on a community level might improve people's general experience about safety and thus improve their subjective evaluations of their wellbeing or health. All aspects of health can be understood as individual resources and thus, are rather easily integrated into resource theories, whereas integrating them into theories based on needs is not without complications. As stated previously, health can be understood as an independent need and although a strong need towards healthiness in itself might not be common, most are motivated to take care of illnesses or symptoms should such arise. Health can also be understood as a general resource enabling the fulfilment of central needs. The same does not, however, apply to the concept of social capital, since social capital can either be seen as a resource on an individual or community level or as representing a means by which social needs or needs related to self-realization can be fulfilled.

All research focused on wellbeing or health, both quantitative as qualitative, and especially true longitudinal or time series studies should be capable of more than just registering changes. Research should also be able to identify or at least come up with well-grounded hypotheses about background factors that might influence or be responsible for these changes. For older people, life-course studies focusing on the impact of education, socioeconomic status, the workplace, and social relations may be particularly useful in understanding health and wellbeing in later life. Such research would inform and validate the planning of social or health policy interventions or at least to achieve a discontinuation of an unfavourable development. On the other hand, future social policy interventions cannot rely on merely traditional solutions, since problems in industrialised societies do not concentrate on subsistence alone but increasingly also on social marginalization, which cannot be solved solely by income transfers. Future challenges for social or health policy interventions include promoting and improving initiatives where senior citizens take part in societal activities and thus counteract social exclusion. Finally, it could be said that improving the wellbeing of the citizens can never be considered as a solely societal matter, since perceived or subjective wellbeing always requires creative individual engagement. However, external conditions rather than solely individual choices are responsible for a person ending up in a problematic situation or even a life crisis.

References

- Allardt, E. (1975). *Att ha, att älska, att vara. Om valfärd i Norden. [Having, loving, being. On welfare in the Nordic countries]*. Lund: Argos.
- Antonovsky, A. (1987). *Unraveling the mystery of health*. San Francisco: Jossey-Bass.
- Anderson, R. T., Aaronson, N. K., & Wilkin, D. (1993). Critical review of the international assessments of health-related quality of life. *Quality of Life Research*, 2(6), 369–395.

- Atchley, R. C. (1989). A continuity theory of normal aging. *The Gerontologist*, 29(2), 183–190.
- Bandura, A. (1977). Self-efficacy: Towards a unifying theory of behavioral change. *Psychological Review*, 4(2), 191–215.
- Bourdieu, P. (1972). *Esquisse d'une théorie de la pratique, précédé de trois études d'ethnologie kabyle*, [Outline of a theory of practice.]. Cambridge: Cambridge University Press.
- Boyle, M.H., Torrance, G.W., Sinclair, J.C., & Horwood, S.P. (1983). *Economic evaluation of neonatal intensive care of very-low-birth-weight infants*. *N Engl J Med*, 308, 1330–7.
- Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology Supplement*, 94, 95–120.
- Cumming, E., & Henry, W. E. (1961). *Growing old*. New York: Basic.
- Doyal, L., & Gough, I. (1991). *A theory of human need*. New York: Palgrave Macmillan.
- Ferraro, K. (1980). Self-ratings of health among the old and the old-old. *Journal of Health and Social Behavior*, 21, 377–383.
- Happy Planet Index. www.happyplanetindex.org/. Accessed July 2006.
- Havighurst, R. J. (1961). Successful aging. *The Gerontologist*, 1, 8–13.
- Johansson, S. (1970). *Om levnadsnivåundersökningen*. Stockholm: Allmänna förlaget.
- Jylhä, M. (2009). What is self-rated health and why does it predict mortality? Towards a unified conceptual model. *Social Science & Medicine*, 69(3), 307–316.
- Karisto, A. (1984). *Hyvinvointi ja sairauden ongelma. English welfare and the problem of illness*. Helsinki: Kansaneläkelaitoksen julkaisuja. M:46.
- Kawachi, I., Subramanian, S. V., & Kim D. (Eds.). (2008). *Social capital and health*. New York: Springer.
- Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology*, 37(1), 1–11.
- Lehtinen, V. (1991). *Suomalaisten aikuisten mielenterveys ja mielenterveyden häiriöt*. [Mental health and mental disorders of the Finnish adult population]. Helsinki: Kansaneläkelaitoksen julkaisuja. AL:33.
- Maslow, A. (1968). *Toward a psychology of being* (2nd ed.). New York: Van Nostrand Reinhold Company.
- Nussbaum, M. C. (2000). *Women and human development*. Cambridge: Cambridge University Press.
- Nyqvist, F., Forsman, A. K., Giuntoli, G., & Cattani, M. (2013). Social capital as a resource for mental well-being in older people: A systematic review. *Aging and Mental Health*, 17(49), 394–410.
- Parsons, T. (1952). *The social system*. London: Tavistock.
- Purola, T. (1971). Sairaus sosiaalilääketieteellisenä käsitteenä. [Illness as a socio-medical concept.]. *Sosiaalilääketieteellinen Aikakauslehti. Finnish Journal of Social Medicine*, 3, 3–11.
- Putnam R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.
- RAND 36. (2013). www.rand.org/health/surveys_tools/mos/mos_core_36item_terms.html. Accessed Oct 2013.
- Sen, A. (1980). *Equality of what?* In Mc. Murrin, *The tanner lecture on human values*, (Vol. I, pp. 197–220). Cambridge: Cambridge University Press.
- Sheline Y. I., Disabato B. M., Hranilovich, J., Morris, C., D'Angelo, G., Pieper, C., et al. (2012). Treatment course with antidepressant therapy in late-life depression. *American Journal of Psychiatry*, 169(11), 1185–1193.
- Social Progress Index. www.socialprogressimperative.org/. Accessed 11 April 2013.
- Veenhoven, R. (1984). *Conditions of happiness*. Dordrecht: D. Reidel Publishing Company.
- Von Wright, G. W. (1986). *Vetenskapen och förnuftet*. [Science and reason]. Helsingfors: Söderströms.
- WHO. (1995). The world health organization quality of life assessment (WHOQOL): Position paper from the World Health Organization. *Science & Medicine*, 41(10), 1403–1409.
- WHO-QOL-BREF. (2013). www.who.int/substance_abuse/research_tools/whoqolbref/en/. Accessed Oct 2013.
- www.who.int/about/definition/en/print.html/. Accessed Aug 2014.

Sakari Suominen is a Medical Doctor and a Public Health scientist. Concurrently he is part-time Professor of Public Health at the Nordic School of Public Health NHV in Gothenburg, Sweden. He is also affiliated to the University of Turku Finland and the Folkhälsan Research Center, Helsinki, Finland. He has published over 100 scientific referee-approved papers of which most are international in the field of epidemiology, public health management and health of children and adolescents.