

SOCIAL INDICATORS RESEARCH SERIES

Volume 25

**QUALITY OF LIFE
RESEARCH IN CHINESE,
WESTERN AND GLOBAL
CONTEXTS**

Edited by

DANIEL T.L. SHEK, YING KEUNG CHAN AND PAUL S.N. LEE

QUALITY-OF-LIFE RESEARCH IN CHINESE, WESTERN AND GLOBAL
CONTEXTS

Social Indicators Research Series

Volume 25

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QUALITY-OF-LIFE RESEARCH IN CHINESE, WESTERN AND GLOBAL CONTEXTS

Edited by

DANIEL T.L. SHEK, YING KEUNG CHAN and PAUL S.N. LEE

*The Chinese University of Hong Kong,
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Reprinted from *Social Indicators Research*, Volume 71 (March 2005)

 Springer

A C.I.P. Catalogue record for this book is available from the Library of Congress

ISBN 1-4020-3601-9 (HB)
ISBN 1-4020-3602-7 (e-book)

Published by Springer,
P.O. Box 17, 3300 AA Dordrecht, The Netherlands.

Printed on acid-free paper

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Printed in the Netherlands

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D.T.L. SHEK Y.K. CHAN and P.S.N. LEE

QUALITY OF LIFE IN THE GLOBAL CONTEXT: A CHINESE RESPONSE

Perhaps there is no other research topic like the concept of quality of life (QOL) that has attracted so much research attention from different disciplines. A review of the major databases shows that much research effort has been spent to understand the theoretical and practical aspects of the concept. Using the search term “QOL”, computer search conducted in July 2004 showed that there were 11 867 citations in PsycINFO, 2 843 citations in Sociological Abstracts, 415 citations in Social Work Abstracts, 4 204 citations in ERIC, 59 932 citations in MEDLINE, and 13 672 citations in CINAHL. Despite the abundance of research in the study of QOL, there are several interesting developments and missing gaps that can be identified in the existing literature. With reference to these developments and missing gaps, several possible research directions can be considered.

First, with the growing popularity of ecological models asserting that human behavior is embedded in different ecological systems (e.g., family system and macro socio-cultural system), it is obvious that a more holistic understanding of the concept of QOL and the related phenomena with reference to different systems is called for (Shek, 2003b). Regarding the different systems in which the person is embedded, the family system can be regarded as an important developmental context, particularly in the Asian culture. However, a survey of the literature shows that related QOL research with reference to the family system (e.g., family QOL) is not substantial. In addition, the role of culture (e.g., cultural beliefs) in the development of QOL is far from clear. Finally, despite the growing emphasis on

the importance of spirituality as a factor related to QOL or as a component of QOL, the study of QOL in relation to the spiritual dimension is also not widespread.

Second, with specific focus on the person in the lifespan, while much research has been conducted to examine the QOL of people in different stages of the life span, such as adulthood in general and old age in particular, there are comparatively fewer research studies on the QOL of children and adolescents. According to Wallander et al. (2001), among the 20,000 related articles published between 1980 and 1994, only approximately 13% of the papers were based on children and adolescents. Shek (2004) also remarked that the emotional QOL of adolescents has been under-researched.

Third, a severe limitation of the existing scientific literature is that majority of the studies have been conducted in Western contexts based on Western participants and comparatively fewer studies have been conducted in different Chinese contexts. With reference to PsycINFO, the use of search terms of "QOL" and "Chinese" showed that there were only 161 citations in July 2004. Obviously, this is not a problem if the assumption that QOL and the related phenomena are universal in different cultures is valid. However, because culture plays an important role in the definition and experience of QOL, the predominance of studies based on non-Chinese participants is an obvious limitation (Shek, 2002b). For example, while happiness and satisfaction are important components of QOL in the American culture, Chinese people emphasize forbearance, endurance and contending mentality. Empirically, there are research findings showing that cultural beliefs play an important role in the emotional QOL of Chinese adolescents (e.g., Shek, 2004; Shek et al., 2003). As such, it is important to conduct more studies in the Chinese culture to understand cross-cultural differences in QOL and its manifestation. In particular, with reference to the question of generalizability of QOL theories and research findings generated from the Western contexts, studies in different Chinese contexts are indispensable.

Fourth, while QOL studies in the medical and rehabilitation settings have commonly focused on the physically disadvantaged and intellectually impaired groups (e.g., Schalock and Alonso, 2002), comparatively fewer studies have examined the QOL of persons experiencing economic disadvantage. The study of QOL in persons experiencing economic disadvantage is important because poverty has not diminished despite the growth in the global economy in the past decades (Shek, 2002a, 2003a). Unfortunately, in contrast to the growing problem of poverty in the global context, Orthner (1996) remarked that studies in poverty “has not been accorded the level of research attention as families in middle class” (p. 589). There are other researchers who criticized that research in persons experiencing economic disadvantage has been under-researched (e.g., Luthar, 1997; Shek, 2002a, 2003a). In short, more QOL studies in individuals, families, communities and societies experiencing economic disadvantage should be conducted.

Fifth, while researchers in different disciplines, including psychology, sociology, social work, education, communication, medicine and health-related disciplines have examined the concept of QOL, dialogues among researchers in different professions are not widespread and forums for exchanges among different professionals are few. Collaboration among different professionals is obviously consistent with the notion of holistic understanding of the concept of QOL and the related phenomena. For example, if we want to understand the QOL of adolescents experiencing economic disadvantage, understanding of the existence of economic opportunities, welfare provision, living conditions, neighborhood characteristics, sub-cultural norms, media stereotypes, community attributes as well as physical QOL, psychological QOL, interpersonal QOL and spiritual QOL of the persons involved would be necessary to give a holistic picture of the problem area.

Sixth, because researchers in different countries have studied the concept of QOL, it can be argued that dialogues among researchers in different countries and exchanges among different professionals in different countries are important. The related dialogues and collaboration among researchers in different

nations will enable us to construct global pictures and related databases on QOL and the related phenomena.

Finally, with reference to the issue of how QOL at the aggregate level (e.g., community, societal, national, regional, international or global level) can be adequately assessed, there is still the debate surrounding whether objective indicators (such as official statistics) or subjective indicators (such as opinion surveys) are better indicators of QOL. If one uses official statistics to assess QOL, the difficulties involved are what indicators should be used and how they should be chosen. In addition, some official statistics (e.g., mortality rates) might have low correlation with subjective aspects of QOL (e.g., feeling of happiness). On the other hand, if one uses survey findings to assess QOL, one common difficulty is that missing values would affect the data quality and means to reduce the negative impact of missing data would be a challenging task. In addition, reliability and validity of the assessment tools involved would be additional hurdles for the researchers to overcome. Obviously, more research to address the methodological issues related to the assessment of QOL is much needed. One recommended strategy adopted by QOL researchers is to use multiple sources of data (e.g., official statistics and survey data) to give a more complete picture about QOL and the related phenomena.

Against the above background, it is indeed an exciting task for us to serve as guest editors for this special issue of *Social Indicators Research* entitled "Quality of life in the Global context: A Chinese Response". The first five articles of this special issue are QOL studies conducted in non-Chinese contexts. In the first article by Alex Michalos, the relationship between arts and QOL was examined. Because this issue has been rarely examined in the QOL literature, this is a pioneering addition to the literature. In the next paper, Ruut Veenhoven argued for the use of the concept of 'apparent' QOL and presented findings collected from 67 nations in the 1990s. This is an impressive piece of work that illustrates how a global picture of QOL in different nations can possibly be constructed. In contrast to Veenhoven's global project, Ventegodt and Merrick presented research findings from Denmark between 1991 and

2004 (i.e., several datasets from a specific nation) and concluded that QOL was associated with personal health and attitude towards life, rather than objective factors, life style, or life events.

In the next two papers, QOL in the participatory partnership and marketing contexts was examined. In the paper written by Bruce Mitchell, two experiences in Canada were examined with reference to the assumptions of “shared vision” and “empowerment” underlying participatory and partnership approaches and the author concluded that such approaches should not be viewed in an unrealistic manner. In the fifth paper, Alan Dever examined marketing and the Perinatal Health QOL Model for improving perinatal health status.

For the rest of this special issue, the papers are based on studies examining QOL in Hong Kong. In the next three papers, QOL in the Hong Kong context was examined through the use of different methodologies. In the paper written by Richard Estes, the Social Development Index based on official statistics was described and discussed. Through this groundbreaking project, social development in Hong Kong in the past two decades in terms of different social indicators can be charted. Adopting a different approach, Shen and Choy examined subjective assessments of well-being of Hong Kong residents based on six biennial territory-wide Social Indicator Surveys conducted before and after 1997 and they demonstrated how incomplete data could possibly be handled by applying “optimal scaling” and “hot-deck imputation”. This is also an impressive piece of work that utilized trend data collected from large samples of respondents over time. In contrast to the preceding two papers, the methodology adopted in the paper written by Chan, Kwan and Shek (reviews coordinated by Alex Michalos) was based on a mixed-method approach – a combination of official statistics and survey data. The creation of the CUHK Index is a good demonstration of how different methodologies can be combined in a single study to reflect the QOL of Hong Kong people. In short, these three papers can be regarded as pioneering studies that substantially enhance our understanding of the QOL of people in Hong

Kong and they also demonstrate the different ways by which QOL indicators can possibly be developed.

In the next two papers, predictors of the QOL in old people in Hong Kong were examined. Based on a large sample of old people in Hong Kong ($N = 3000$), Cheung et al., examined the factors predicting QOL and the benefits from caring services. This study is important for it clarifies our understanding of the determinants of QOL in Chinese old people that has much welfare and health care implications. Based on the responses of old people living alone, Lee showed that mental health status, number of days staying in hospital, life satisfaction, age, and self-esteem were significant factors predicting the life quality of older Chinese respondents living alone. Because there are few related studies examining old people living alone in different Chinese contexts, this paper can be regarded as a pioneering attempt. In view of the growing aging population in Hong Kong, these two papers can be regarded as important additions to the elderly QOL literature in Hong Kong.

The next three papers are concerned about the QOL of persons experiencing economic disadvantage in Hong Kong. In the paper written by Shek (Y.K. Chan as the Action Editor), the relationships among economic stress, emotional QOL and problem behavior in Chinese adolescents with and without economic disadvantage were examined. In the next paper (reviews coordinated by Alex Michalos), Shek reported longitudinal findings showing that Chinese cultural beliefs about adversity were associated with psychological well-being, delinquency and substance abuse in Chinese adolescents with economic disadvantage over time. Finally, Wong Hung examined changes in the QOL of poor households in Hong Kong in the late 1990s in terms of their levels of expenditure, income security and poverty before and after 1997 and concluded that the QOL of poor households was devastating and they were also socially excluded from the mainstream of society. These three papers are truly pioneering in the Hong Kong context because no scientific studies have examined similar issues in the past.

In the next two papers, environmental QOL in the Hong Kong context is examined. In the paper written by Ng Mee

Kam, QOL perceptions and directions for urban regeneration in Hong Kong were analyzed and respondents' views of Hong Kong's "cluster of excellence" and areas requiring further improvement were examined. In the next paper, Ng Sai Leung examined subjective residential environment and its implications for QOL among university students in Hong Kong. The final two papers are attempts examining QOL with reference to the school and family systems. In the paper examining burnout in secondary school teachers, Lau, Yuen and Chan presented research findings from a groundbreaking study describing teacher burnout and the related demographic correlates in secondary teachers in Hong Kong. In the final paper (reviews coordinated by Chan Ying Keung), Siu and Shek examined the linkages between social problem solving and competence (empathy), emotional QOL (vengeance) and family QOL (family functioning and parent-adolescent conflict) in adolescents in Hong Kong.

With reference to the developments and missing gaps in the QOL literature described above, this special issue has several unique characteristics. First, papers reflecting a holistic view of the concept of QOL are included. Papers examining QOL with respect to the macro societal conditions (e.g., papers by Estes and Wong Hung) and micro personal perceptions and experiences (e.g., papers by Ng Sai Leung and Ruut Veenhoven) are included. In addition, papers addressing neglected areas in holistic QOL, including arts and QOL (paper by Michalos), family and QOL (Siu and Shek's paper), as well as existential well-being and QOL (Shek's papers) are collected.

The second unique feature of this special issue is that papers addressing QOL in different stages of the life span, including the perinatal stage (Dever's paper), adolescence (papers by Shek and Ng Sai Leung), early and middle adulthood (e.g., Lau, Yuen and Chan's paper on teacher burnout) and late adulthood (papers by Cheung et al. and Lee), are collected.

Third, in view of the fact that empirical studies of QOL are rare in the Chinese context, 12 papers addressing QOL in Hong Kong are included (sixth to seventeenth papers) and the paper by Ruut Veenhoven also addresses the apparent QOL

in Chinese people. Fourth, to clarify our understanding of the linkage between QOL and economic disadvantage, three papers directly addressing QOL among people experiencing economic disadvantage are included in this special issue.

The fifth unique characteristic of this special issue is that researchers from different disciplines, including economics, education, geography, journalism and communication, occupational therapy, medicine, nursing, political science, psychology, social policy, social work, sociology, statistics, and town planning are involved. Sixth, this special issue is a collection of work conducted in different parts of the world by researchers in different nations. Besides papers describing studies conducted in Hong Kong by academics in Hong Kong and other parts of the world (Estes from the United States and Choy from Australia), papers describing QOL in non-Hong Kong contexts, including Canada (papers by Michalos and Mitchell), Denmark and Israel (paper by Ventegodt and Merrick), U.S.A. (paper by Dever), and the global world (paper by Ruut Veenhoven) are included.

Finally, papers adopting different methodologies are included in this special collection. For example, while pure official statistics were used in Estes's paper, Shen and Choy used pure survey data and Chan, Kwan and Shek utilized a combination of official statistics and survey data. Furthermore, studies adopting quantitative methods were included in the special issue.

We would like to take this opportunity to thank those colleagues who have provided invaluable assistance in reviewing the papers submitted for possible inclusion in this special issue. They include colleagues from Hong Kong Baptist University (Chan Kai Fong) Hong Kong Polytechnic University (Howard Cheng, Fernando Cheung, Tsui Ming Sum), Lingnan University (Alfred Chan), The Chinese University of Hong Kong (Cheung Chau Kiu, Cheung Yuet Wah, Fok Tai Fai, Lam Ching Man, Lam Kin Che, Lau Yuk King, J. J. Lee, Rance Lee, Joyce Ma, Mok Bong Ho, Tang Kwong Leung, Tsang Yuk Bill, Wong Ka Ying, Yip Shing Kai), The University of Hong Kong (Cecilia Chan, Lam Chiu Wan, Joe Leung, Sandra Tsang), Hong Kong Council of Social Service (Chua Hoi Wai), QOL Research Center in Copenhagen, Denmark (Søren Ventegodt), and the

National Institute of Child Health and Human Development, Israel (Joav Merrick). We would also like to thank Alex Michalos who have helped to coordinate the review work for the papers written by the guest editors.

NOTES

¹ The preparation of this special issue was financially supported by the Research Grants Council of the Government of the Hong Kong Special Administrative Region, Hong Kong (Grant CUHK4293/03H).

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ALEX C. MICHALOS¹

ARTS AND THE QUALITY OF LIFE: AN EXPLORATORY STUDY

(Accepted 20 December 2004)

ABSTRACT. The aim of this investigation was to measure the impact of the arts broadly construed on the quality of life. A randomly drawn household sample of 315 adult residents of Prince George, British Columbia served as the working data-set. Examining zero-order correlations, among other things, it was found that playing a musical instrument a number of times per year was positively associated with general health ($r = 0.37$), while singing alone a number of hours per week was negatively associated with general health ($r = -0.19$). The strongest positive associations with life satisfaction are satisfaction obtained from gourmet cooking and embroidery, needlepoint or cross-stitching, at $r = 0.39$ and $r = 0.32$, respectively. The satisfaction obtained from gourmet cooking ($r = 0.35$) and buying works of art ($r = 0.32$) were the most positive influences on happiness. The strongest associations with the Index of Subjective Well-Being are the satisfaction obtained from gourmet cooking ($r = 0.37$) and the satisfaction obtained from knitting or crocheting ($r = 0.34$). Examining multivariate relations, it was found that eight predictors combined to explain 59% of the variance in life satisfaction scores, with self-esteem satisfaction ($\beta = 0.35$) and friendship satisfaction ($\beta = 0.27$) most influential. Among the arts-related predictors in the eight, singing alone was fairly influential and negative ($\beta = -0.18$), while the satisfaction obtained from reading to others ($\beta = 0.08$) and the Index of Arts as Self-Health Enhancers ($\beta = 0.11$) were somewhat less influential. When the arts-related predictors were combined with a set of domain satisfaction predictors, total explanatory power was increased by only 3 percentage points. Seven predictors could explain 58% of the variance in satisfaction with the overall quality of life scores. Of the arts-related predictors, only time spent going to non-art museums was significant ($\beta = 0.07$). Arts-related predictors did not increase explanatory power at all beyond that obtained from domain satisfaction variables alone. Eight predictors explained 42% of the variance in happiness scores, with the most influential predictors including satisfaction with self-esteem ($\beta = 0.37$) and financial security ($\beta = 0.21$), followed by the Index of Arts as Self-Developing Activities ($\beta = 0.18$). Arts-related predictors added 3 percentage points of explanatory power to that obtained from domain satisfaction

scores. Seven predictors could explain 65% of the variance in scores on the Index of Subjective Well-Being, led by self-esteem satisfaction ($\beta = 0.35$) and financial security satisfaction ($\beta = 0.30$). The Index of Arts as Community Builders had a modest influence ($\beta = 0.11$), but all together, arts-related predictors increased our total explanatory power by a single percentage point. Summarizing these multivariate results, it seems fair to say that, relative to the satisfaction obtained from other domains of life, the arts had a very small impact on the quality of life (measured in four somewhat different ways) of a sample of residents of Prince George who generally cared about the arts. Even in absolute terms, arts-related activities could only explain from 5% to 11% of the variance in four plausible measures of the self-perceived quality of respondents' lives. By comparing the composition of our sample with census data from 2001, it was demonstrated that the sample was not representative of residents of our city. It would, therefore, be wrong to generalize our findings to the whole population of Prince George or to any larger population.

INTRODUCTION

The impact of the arts broadly construed on the overall quality of people's lives is without a doubt the most understudied and possibly the most under-rated issue in the field of social indicators research. In all of the 1085 papers of the 63 volumes of *Social Indicators Research* published since the first issue in March 1974, there is *not even one* focused precisely on this question. Only two came close to discussing the arts. A paper by Lee and Weber (1984) was focused on the development of "an instrument which measures the aesthetic quality of housing environments", and a paper by Lloyd and Auld (2002) was focused on the broad topic of "the content and measurement of leisure and its relationship to the quality of life". Zumbo and I also undertook a survey focused on leisure activity broadly construed and the quality of life (Michalos and Zumbo, 2003), but it did not have any particular focus on the arts. Recognizing this great gap in our understanding of the impact of the arts on the quality of life, I decided to make this topic the focus of our annual spring survey in the city of Prince George.

I regard measures of people's beliefs and feelings about the arts as cultural indicators, and the latter as a species of subjective social indicators. Similarly, also I regard simple counts of things like art museums, painters and government funding for the arts as cultural indicators, more precisely as species of objective social indicators. This is in contrast to the views of Rosengren (1992) and Gouiedo (1993), who want to reserve the terms 'cultural indicator' for what most researchers call 'subjective social indicators' and 'social indicator' for what most researchers call 'objective social indicators'.

As I scanned the relevant electronic databases and literature for this investigation, I discovered that social indicators researchers were considerably more biased than their sociological colleagues, although the latter were certainly biased. According to Zolberg (1990, p. 199),

When H. D. Duncan did a literature count of books and articles in *Current Sociology* and UNESCO's *International Bibliography of Sociology*, he found that from 1965 to 1969, of between 4,700 to 5,700 items listed each year, not more than 22 to 30 [about 0.5%] dealt with works on the sociology of art or music. Moreover, of those listed, more than half had been done outside the United States, and about one-sixth were merely repeats from previous years. Expanding on those findings, I found that in recent years, although the bulk of sociological publications is still in fields remote from the arts, nevertheless, the proportions have shifted somewhat. Whereas in the late 1960s the arts never attained as much as 1 percent of all publications, currently they hover around 2 percent, and although the literature coverage in those compendia is far from complete, at least repeats of entries have been eliminated (UNESCO 1984, 1985, 1986).

After carefully documenting the variety of ways in which music is used to partially construct people's feelings and behaviour in elevators, airplanes, hospitals, prisons, restaurants and shops, as well as when they are dancing, working, exercising, celebrating, protesting, worshipping, daydreaming and making love, DeNora (2000, p. 155) leveled one of the sharpest criticisms of our profession when she wrote

Sociological discourse itself is biased against the perception of the aesthetic dimension of modern life. Instead, the sources of orderly conduct are

depicted as residing in rules, knowledge, skills and sanctions. This aspect of sociological discourse separates individual from society, subject from object, and culture from agency. It achieves this separation through its use of concepts such as ‘interest’, ‘rationality’ and ‘free will’.

Given the profoundly social aspects of the arts, their relative neglect by sociologists in general and by social indicators researchers in particular is both surprising and disturbing. Nobody appreciated and expressed these social aspects more deeply than Howard Becker in his classic *Art Worlds* (1982). Early in that book he wrote,

Think of all the activities that must be carried out for any work of art to appear as it finally does. For a symphony orchestra to give a concert, for instance, instruments must have been invented, manufactured, and maintained, a notation must have been devised and music composed using that notation, people must have learned to play the notated notes on the instruments, times and places for rehearsal must have been provided, ads for the concert must have been placed, publicity must have been arranged and tickets sold, and an audience capable of listening to and in some way understanding and responding to the performance must have been recruited. A similar list can be compiled for any of the performing arts. With minor variations (substitute materials for instruments and exhibition for performance), the list applies to the visual and (substituting language and print for materials and publication for exhibition) literary arts (Becker, 1982, p. 2).

Becker used the term ‘art world’ to designate “an established network of cooperative links among participants... (with artists as) some subgroup of the world’s participants who, by common agreement, possess a special gift, therefore make a unique and indispensable contribution to the work, and thereby make it art” (p. 35).

Since people have speculated about the nature and role of the arts in a good life at least since Aristotle’s *Poetics* in the third century B.C., it is impossible to do justice to the variety of well-reasoned views. In this study, the term ‘the arts’ or simply ‘arts’ is used in a very broad sense to include such things as music, dance, theatre, painting, sculpture, pottery, literature (novels, short stories, poetry), photography, quilting, gardening, flower arranging, textile and fabric art. In Michalos (1981, p. 147) I

wrote “ In the presence of at least 160 different definitions of ‘culture’ (Berelson and Steiner, 1964), I have scrupulously tried and will continue to try to avoid the word”. Since that still seems to be a wise policy, I have not entered into a debate about the degree of coextensiveness of the arts and culture. As English is ordinarily used, there is clearly some overlap in the connotation and denotation of the terms ‘arts’ and ‘culture’. Jackson (1998, p. ii) was not using extraordinary language when she used the two terms as synonyms in the following sentence.

With the exception of research on the impact of the arts on school performance and economic development, there is very little empirical research that clearly links forms of cultural participation with other specific desirable social outcomes, particularly at the neighborhood level.

A deliberate attempt was also made to avoid what Jensen (2002) described as the “mass culture debate” about the “real” nature of art, its differences from entertainment and its threat from mass culture. I could not improve upon her summary remarks about that debate. As she sees it,

...there is general agreement [among those who engage in the debate] that there are three levels of culture – high, middle, low – and that they are distinguished by decreasing levels of sophistication, seriousness, complexity, subtlety – and, *as if naturally* – social value...Each level calls for different ‘cognitive, moral and appreciative capacities’ in its audience...True art yields true experience. False art yields false experience. In the mass culture debates, it is taken for granted that middle and low levels of culture offered cruder and more degraded forms of experience. Mass culture cheats the mass audience because, in the logic of the debates, they are being blocked from experiencing the truth and beauty offered by genuine art...In the mass culture debate, the contrast between true art and mass art is almost always glossed as a contrast between art and entertainment. Art is serious, while entertainment is fun. The experience of art is mental, difficult, and valuable; the experience of entertainment is emotional, easy, and not worth much...True art is presumed to have direct and beneficial effects on consciousness, self-awareness, discriminating capacities: on the mind. But mass art is presumed to have a direct effect on the mind, too – only this time, like a narcotic. This is how the mass culture debate moves from a concern with content to a concern with effects (Jensen 2002, pp. 119–122).

I do believe that Zolberg (1990, p. x) was right when she wrote that “shrinking the arts to a subset known as fine art is of doubtful validity”, but there is no need to enter into this debate here. Becker (1982) correctly observed that because “‘art’ is an honorific title”, many people want their work to be called art. However,

Just as often, people do not care whether what they do is art or not (as in the case of many household or folk arts – cake decorating, embroidery, or folk dancing, for instance) and find it neither demeaning nor interesting that their activities are not recognized as art by people who do care about such things (p. 37).

Jensen’s book was particularly helpful because as she tried to make a case against what she called an “instrumentalist” view of the arts, she listed a wide variety of alleged things that the arts can do. Instrumentalists, in her account, believe that the arts can “transform individuals, and thereby improve society” (p. 2). This belief provides “a simple and palatable explanation for why things are bad in society, and a simple and palatable way to make them better” (p. 5). The best example from the “arts-booster literature” of good things that the arts are supposed to be able to do came from the Campaign to Triple California State Funding to the Arts. In Jensen’s summary, the Campaign literature claimed that

...support for the arts is...support for self-expression, healing, wisdom, diversity, and personal growth. To support the arts is also to support civic growth, safer neighborhoods, drug rehabilitation, and higher property values. To support the arts is to connect with the past, and make better prospects for the future... ‘the arts’ can benefit all of us, from birth to death, socially, economically, spiritually, and physically, no matter who we are or what our background is. This is a powerful version of the art-as-medicine perspective, developed to make it more likely that public funding would continue. The strategy was to define the arts in such a way that no one could deny their value – who could possibly *not* support the route to such wonderful stuff? ... A major theme in this re-positioning of the arts is making a connection between the arts and local communities...The arts can be touted as ways to revitalize moribund downtowns and make urban neighborhoods better places to live...The arts are said to ‘prepare students for the new global job market’ because they promote ‘out of the box thinking,’ ‘team problem solving,’ and ‘creative approaches to complex problems.’ More-

over, the arts are 'also a cost effective approach to addressing a myriad of social issues – as gang intervention and drug reduction strategies. . .as a tool in the healing arsenal for people with AIDS and cancer, and as a life-affirming focal point for the elderly. . .On the international front, the arts are claimed to 'work as our ambassador to the world. . .they help sell our concepts of capitalism and democracy and as such are a vital part of our national defense. America is about freedom. Art is an expression of that freedom (Jensen, pp. 145–147).

At the risk of exhausting our survey respondents, I tried to find out how they felt about many of these alleged good effects of the arts. In my analyses, I tried to measure the accuracy of their beliefs about those effects. Since many effects occur simultaneously (e.g., giving immediate pleasure, building self-esteem, personal expertise and team spirit, and making money), some attention must be paid to appropriate allocations. Avowed pragmatist that I am (Michalos, 1978, 1995), it is not as clear to me as it apparently is to Jensen that John Dewey's views (as reported by Jensen based on Dewey, 1927, 1980) of the arts as "forms of communication" and "vehicles for democracy" are not instrumental, or that his "experimentalist" philosophy is not essentially a version of instrumentalism. In any case, I also tried to measure respondents' beliefs about some of those notions and the accuracy of those beliefs. Jensen's legitimate doubts about the wide variety of instrumentalist arguments for supporting the arts might lead one to under-estimate the amount of good research demonstrating that some art forms have significant impacts on people's health and, by implication (Michalos, 2003a), on the quality of their lives. In particular, there is a sizable literature on the use of music in therapeutic settings and considerable evidence for the positive impact of music on health; for example, Maranto (1993), Standley (1996), American Music Therapy Association (2000), Lipe (2002), Gregory (2002). As early as 1993, Maranto was able to write that

Music listening has been shown to significantly reduce stress hormone levels, decrease anxiety, diminish side effects of anesthesia. . .reduce pulse rate, stabilize blood pressure, reduce postoperative pain and need for pain medication, increase speed of recovery. . .reduce irritability, crying and stress

behaviours...Passive and active music experiences have been shown to...improve motor functioning...decrease muscle tension...improve respiration and vital capacity...reduce psychological trauma...decrease fear...provide measure of control/reduce helplessness, help patient deal with issues of illness and dying (Maranto, 1993, pp. 161–164).

Barrera et al. (2002) showed that interactive music therapy reduced anxiety and increased the comfort of hospitalized children with cancer. Browning (2001) reported that women in a music therapy group “were significantly more relaxed than those in the control group during the 3 hours prior to delivery” of their babies. Weber (1999) exposed patients in an isolation ward to a variety of live concerts and reported that “The concerts contributed much to patients’ improved sense of well-being, ability to cope with depression, increased socialization, and quality of hospital stay”. Gallant et al. (1997) used rehabilitation and music intervention on matched couples in the Brentwood Recovery Home for Alcoholics in Windsor, Ontario and found that “clients who received rehabilitation and concurrent music intervention fared better on a number of outcomes than those who received rehabilitation alone”. Osgood, et al. (1990) showed that older people (65 years or more) participating in creative dance had “significant positive changes in life satisfaction” compared to a matched control group, and that “creative dance and movement encouraged expression of feelings and needs, group participation, friendship formation, body awareness and sensitivity, laughter, joy and fun”.

Lipe (2002, p. 233) concluded her review of 52 articles written “from 1973 to 2000 dealing with music, spirituality and health” by saying that “a number of practitioners are finding in music a way to access clients’ spiritual resources for the purposes of optimizing wellness and moving toward wholeness”. She cited several authors who regard “spiritual healing” and music therapy as forms of “complementary and alternative medicine”; for example, Astin (1998) and Buckner (1999).

Standley’s (1996) meta-analysis of 98 studies that used “music initiation, participation, or interruption as a contingency for behavior change” revealed that

Music is highly effective as a contingency for either increasing desirable behavior or reducing undesirable behavior, with slightly better results in increasing behavior. . . music contingencies were more effective in physical rehabilitation and with developmental behaviors than with medical or educational behaviors (p. 124).

Acknowledging all these very positive ways in which music has been shown to have an impact on the quality of people's lives, it is worthwhile to end this brief review with the following remarks by DeNora (2000, pp. 162–163). Although her particular focus is on music, what she says is directly relevant to all the arts and all the aesthetic dimensions of life.

. . . music is appropriated by individuals as a resource for the ongoing constitution of themselves and their social psychological, physiological and emotional states. As such it points the way to a more overtly sociological focus on individuals' self-regulatory strategies and socio-cultural practices for the construction and maintenance of mood, memory and identity. . . If music is a medium for the construction of social reality, then control over the distribution of the musical resources in and through which we are configured as agents is increasingly politicized and the movements, such as Pipedown in the United Kingdom, against piped background music, have been spawned in reaction to what is perceived as the commercial dominance of the public sphere. . . Further explorations of music as it is used and deployed in daily life in relation to agency's configuration will only serve to highlight what Adorno [1967, 1973, 1976], and the Greek philosophers [notably Plato and Aristotle], regarded as a fundamental matter in relation to the polis, the citizen and the configuration of consciousness; namely, that music is much more than a decorative art; that it is a powerful medium of social order. Conceived in this way, and documented through empirical research, music's presence is clearly political, in every sense that the political can be conceived.

SAMPLING TECHNIQUE AND QUESTIONNAIRE

The questionnaire used in our survey was crafted following the standard procedure developed at the Institute for Social Research and Evaluation here. In order to ensure that a set of questions is produced that will be useful for those most involved in any field being studied, we bring several key community players together to serve on a committee that constructs

the questionnaire. In the present case, 18 members of the Prince George Community Arts Council served on the instrument construction committee. The great variety of art forms and arts-related activities reviewed in our questionnaire is a direct result of the participation of these Council members.

Twenty-five hundred nine-page questionnaires were mailed out to a random sample of households in Prince George, British Columbia in June 2003. The first three pages of the questionnaire listed 66 activities that are related in one way or another to the arts, for example, listening to music, graphic designing, working on community festivals, telling stories. Because people participate in different artistic activities in very different time periods, from daily (e.g., listening to music) to a few times per year (e.g., attending live theatre performances), to properly estimate the amount of time committed to such activities, I included two different questions. For activities involving frequent participation, I asked respondents to estimate the *average amount of time per week* that they spent on them, in hours. If they never engaged in some particular activity, they were asked to write 0 for *hours per week*. For activities involving infrequent participation, I asked them to estimate the *number of times per year* that they participated in them. If they never engaged in some particular activity, they were asked to write 0 for *times per year*. For those activities in which they participated, they were asked to rate the *average* level of satisfaction obtained on a 7-point scale running from 1 = very dissatisfied, 2 or 3 = dissatisfied, 4 = even balance of satisfaction and dissatisfaction, 5 or 6 = satisfied, and 7 = very satisfied.

Following these items, there was a page of questions designed to get more information about the arts-related activity (out of the 67) that respondents perceived as “most important”. For examples, there were questions about levels of satisfaction with their access to the activity, with the price of engagement and with the usual venue, and questions about where they first learned about the activity, for example, in school, watching television, listening to a friend, and how old they were at the time.

The next two pages listed 43 statements culled from the literature describing people’s beliefs and feelings about the arts,

usually phrased in personal terms, for example, My artistic activities help me preserve my cultural heritage, I engage in artistic activities to express my spirituality, My artistic activities have helped me develop close relations with others. Sometimes the phrasing was impersonal, for example, Artistic activity strengthens a community, Clothing styles reveal a lot about people's artistic sensitivity. Respondents were given a 5-point Likert scale and asked to indicate for each item their level of agreement or disagreement, with "strongly disagree = 1" and "strongly agree = 5".

There were then two pages of standard questions about respondents' health and quality of life. These included items about general health and healthy days (Michalos and Zumbo, 2002), participation in voluntary organizations (Michalos and Zumbo, 2001), and satisfaction with particular domains of life (e.g., living partner, housing, financial security) as well as life as a whole (e.g., overall happiness, life satisfaction and subjective well-being) (e.g., Michalos, 2003a).

Finally, there was a page of demographic questions about, for example, age, sex, marital status and education.

SAMPLE CHARACTERISTICS

There were 315 (13%) useable questionnaires returned, which form the working data-set for the survey. Only 20 envelopes were returned with defective addresses. Another household survey undertaken simultaneously by the Institute for Social Research and Evaluation but focussed on the city's financial plan, had a 25% response rate. Since 1994, the Institute has averaged at least one household survey per year in Prince George, with average response rates of about 35% without any follow-up procedures. Thirteen percent is the lowest response rate ever obtained by the Institute. Since the general instrument construction procedures, overall design of the questionnaire, mailout procedures, time of year, covering letter and news media announcements for this survey were similar to those used previously, I suppose the relatively low response

rate was a result of low interest by most residents in things related to the arts. I suspect that what Zolberg (1990, p. 199) said about the view of professional sociologists is probably true of the general public as well. "The arts", she wrote, "whether popular or elite, suffer from a reputation for triviality...". On the other hand, as will be shown below, many of those who did respond to this survey seemed to have considerable interest in the arts.

The average age of respondents was 48 (ranging from 18 to 86). Sixty-five percent were female. The median household income for the group was \$63 000, ranging from \$8 000 to \$320 000 per year. Forty-nine percent were employed full-time and another 11% were employed part-time. Sixty-three percent were married. Twenty-six percent held a university degree and another 28% held a diploma or certificate from a trade, technical, business or community college.

According to the 2001 census for Prince George, 50% of the residents are females, 47% of those aged 15 years or older are married, 14% have university degrees and another 33% have diplomas or certificates from trade, technical, business or community colleges. Thus, our sample cannot be regarded as representative of the general population, although it might be representative of the subset of residents here with particular interests in the arts.

DESCRIPTIVE STATISTICS

Because the complete list of arts-related activities, with time spent and satisfaction obtained from them, is fairly long and indicates that very few respondents participate in many of the diverse activities, the list is included in the Appendix. Here I will simply report highlights taken from the list along with related follow-up questions.

Table I shows the top 10 arts-related activities, listed according to the number of participants, the average number of participation *hours per week* and the mean levels of satisfaction obtained from the participation. Two hundred and eighty respondents (89%) listened to music on average 13.5 hours per

TABLE I

Top 10 arts-related activities, by number of participants, with average *hours per week* participation and mean levels of satisfaction

Activities	Number of participants	Hours per week	Mean satisfaction
Listening to music	280	13.5	5.9
Reading novels, stories, plays	231	8.3	6.2
Watching movies on video	151	5.1	5.4
Singing alone	121	4.3	5.3
Reading to others	92	3.3	6.0
Telling stories	61	3.3	5.7
Gourmet cooking	55	6.0	5.9
Watching art shows on TV	45	2.7	5.5
Designing a garden	42	5.9	6.0
Visiting public library	40	3.2	5.9

week, with an average satisfaction level of 5.9 on the 7-point satisfaction scale. Immediately following that, 231 (73%) reported that they read novels, short stories, plays or poetry on average 8.3 hours per week, with an average satisfaction level of 6.2. That was the highest level of satisfaction reported for any of the top 10 activities, though not for all of the activities listed in the Appendix. The latter shows that from one to five people engaged relatively infrequently in some activities (weaving baskets or textiles, acting with a professional or amateur theatre group) but achieved levels of satisfaction ranging from 6.7 to 7.0 points. Reviewing the numbers in the three columns of Table I, there does not appear to be any correlation between the average amount of time spent on an activity and the average level of satisfaction obtained from it. That is exactly what was found when Pearson product-moment correlations were run among the three columns of items in the Appendix A. 'Visiting a public library' is at best a borderline case of an arts-related activity, but it was included as relevant and the 40 participating respondents scored an average 5.9 level of satisfaction from their visits. Clearly, the activities in the list

are not independent (e.g., visiting a library and reading, listening to music and reading). So, one cannot add the times on various activities to get a grand total.

Table II shows the top 10 arts-related activities, listed according to the number of participants, the average number of participation *times per year* and the mean levels of satisfaction obtained from the participation. Two hundred and twenty-five (71%) went to movies (cinema) on average 5.6 times per year, with an average satisfaction level of 5.5. That was followed very closely by 210 (67%) respondents who visited historic sites on average 2.4 times per year, with an average satisfaction level of 5.8. 'Visiting a public library' made this list too, with 186 participants averaging 10.4 visits per year and achieving an average satisfaction level of 5.9. With the exception of the times per year going to movies, the library visits participation rate was more than double all the other activities in the list. In this list, the 145 people going to professional theatre on average 2.9 times per year reported the highest mean level of satisfaction, at 6.2.

TABLE II

Top 10 arts-related activities, by number of participants, with average *times per year* participation and mean levels of satisfaction

Activities	Number of participants	Times per year	Mean satisfaction
Going to movies	225	5.6	5.5
Visiting historic sites	210	2.4	5.8
Going to concerts	194	3.2	6.0
Visiting public library	186	10.4	5.9
Attending community festivals	167	2.5	6.0
Going to amateur live theatre	166	2.6	5.9
Going to art museums, galleries	163	3.5	5.6
Watching concerts on TV	147	4.8	5.7
Going to professional theatre	145	2.9	6.2
Decorating a home	144	2.8	5.7

By comparing some participation percentages from the current survey with those of the leisure activities survey taken in November 1999 (Michalos and Zumbo, 2003), we can get some evidence of the bias toward the arts held by many people in the current survey. The comparisons are not perfect because the 1999 survey only asked respondents to check off the things they “like to do” in their free time in the fall and winter versus the spring and summer months. However, because the 1999 sample was more representative of the population of the city, it provides a rough benchmark for some comparisons. In the 1999 survey, 79% of respondents said they liked to listen to music in the spring and summer months, and 80% said they liked to listen to music in the fall and winter months. The current sample had 89% listening to music weekly and 93% listening to music at various times during the year. The 1999 sample had 14% and 12% playing an instrument in the spring and summer versus the fall and winter, respectively, compared to the current sample with 22% playing an instrument. The 1999 sample had 31% and 34% going to the theatre in the spring and summer versus the fall and winter, respectively, compared to the current sample with 54% and 47% going to amateur or professional live theatre, respectively. On the other hand, 31% of the current sample spent some time dancing during the year, compared to 32% of the 1999 sample.

Table III gives the top 10 things that respondents thought of on hearing the words ‘arts’ or ‘artistic activity’. There was considerable diversity in the responses, with about 19% (55 people) saying ‘acting/theatre’ and 18% saying ‘painting/drawing’. There was then a drop to 13% saying ‘music/symphony’, and another drop to 8% saying ‘galleries/museums’. A total of 5.4% (16 people) offered such negative comments as ‘boring/waste of time and money’. That was consistent with responses made to the statement ‘I consider artistic activities a waste of time’. For the latter, 6.8% of respondents agreed (3.4%) or strongly agreed (3.4%), compared to 87.7% of respondents who disagreed (23.8%) or strongly disagreed (63.9%).

Table IV shows the top 10 *most important* arts-related activities according to this sample of Prince George residents.

TABLE III

Top 10 first things thought of on hearing the word 'arts' or 'artistic activity', $N = 294$

Things thought of	N	%
Acting/theatre	55	18.7
Painting/drawing	54	18.4
Music/symphony	37	12.6
Galleries/museums	22	7.5
Creativity/talent	17	5.8
Boring/waste of time and money/other negative	16	5.4
Dancing	13	4.4
Crafts	11	3.7
Sculpture/pottery	10	3.4
Sewing/quilting/ stitching	9	3.1

TABLE IV

Top 10 most important arts-related activities, $N = 291$

Arts-related activities	N	%
Music/symphony	88	30.2
Acting/theatre	42	14.4
Writing/reading/literature	36	12.4
Painting/drawing	24	8.2
Sewing/quilting/stitching	18	6.2
Gardening	11	3.7
Community/children's involvement	10	3.4
Dancing	10	3.4
Crafts	7	2.4
Photography	6	2.1

Thirty percent (88 people) mentioned 'music/symphony', followed at some distance by 14% mentioning 'acting/theatre'.

When asked to pick one statement from the set of 43 provided in the section of the questionnaire headed 'Feelings and Beliefs about Art' that indicates their own feelings about the arts-related activity that they identified as *most important* to them, the responses were led by the 10 items listed in Table V. The numbers

TABLE V

Top 10 most frequently cited beliefs or feelings about the most important arts-related activities, $N = 220$

Beliefs and feelings	N	%
F24: My artistic activities contribute to my overall well-being	28	12.7
F17: My artistic activities help me to relax	20	9.1
F6: Generally my artistic activities have a positive effect upon my life	15	6.8
F40: Artistic activity strengthens a community	15	6.8
F8: My artistic activities increase my knowledge about things around me	12	5.5
F25: My artistic activities contribute to my self-esteem	12	5.5
F27: My artistic activities help me develop my creativity	11	5.0
F19: My artistic activities contribute to my emotional well-being	9	4.1
F3: My artistic activities give me a sense of accomplishment	8	3.6
F43: Artistic activity has contributed a lot to our family development	8	3.6

reveal a wide variety of responses, beginning with 13% (28 people) picking the statement ‘My artistic activities contribute to my overall well-being’, followed closely by 9% picking ‘My artistic activities help me to relax’. The most interesting thing about the 10 statements listed in this table is that all of them are included in the three indexes that I constructed to measure specific functions that people perceive the arts as performing. I will have more to say about the indexes below, but here I only want to note that four of the items listed in Table V (i.e., F6, F17, F19, F24) are included in the Index of Arts as Self-Health Enhancers, four others (F3, F8, F25, F27) are included in the Index of Arts as Self-Developing Activities, and the remaining two (F40, F43) are included in the Index of Arts as Community Builders.

Exploring aspects of respondents’ *most important* arts-related activities further, Table VI summarizes their levels of satisfaction with accessibility, costs and support for those

TABLE VI

Levels of satisfaction with various things related to respondents' most important activity

Item	Satisfaction	<i>N</i>
Access to information about the arts activity	5.3	237
Access to the arts facility	5.1	216
Access to the arts activity itself	5.3	220
Price (\$) you usually pay to engage in the activity	5.0	208
Place (theatre, school) of the activity engagement	5.2	184
City government support for the activity	3.7	158
Provincial government support for the activity	3.1	143
Federal government support for the activity	3.0	136
Other support for the activity (donors, clients)	4.6	138

activities. On average, people were satisfied with their access to information about their most important arts-related activity (5.3), to the arts facility housing the activity (5.1) and to the activity itself (5.3). They were roughly equally satisfied with the price (5.0) and the place of the activity (5.2). On the other hand, they were dissatisfied with city (3.7), provincial (3.1) and federal (3.0) government support for the activity. Although the comparison is not perfect, these dissatisfaction levels are significantly lower than the levels expressed by a sample of 715 Prince George residents in 1997. In that survey, 'facilities for music, theatre and art' and 'support for public performances, music and theatre' had mean satisfaction levels of 4.9 and 4.6, respectively (Michalos and Zumbo, 1999). My guess is that the current dissatisfaction levels reflect the bias toward the arts of many of the people in our sample.

Table VII lists the top 10 most frequently cited sources where respondents first learned about their *most important* arts-related activity, with some respondents citing more than one source. As one might have expected, the largest percentage (48%) first learned about their most important activity in school, while the three largest percentages following that were listening to the radio (28%) and to a parent (27%), and watching television (26%). Eleven percent mentioned a public library in this context.

TABLE VII

Top 10 most frequently cited sources where respondents first learned about their most important arts-related activity (some respondents cited more than one source), $N = 115$

Source	%
In school	47.9
Listening to the radio	28.4
Listening to a parent	26.6
Watching television	25.5
In a newspaper	21.6
Listening to a friend	21.3
Attending live theatre performance	14.5
In an art gallery	12.4
In a concert	12.1
In a public library	11.0

Because I have been using a core set of satisfaction items to measure aspects of the quality of people's lives in Prince George since the summer of 1994, it is possible to compare mean scores in the current sample with several earlier and more representative samples of residents. Table VIII gives mean scores for 19 core items (plus one) for the current survey and for a more representative survey sample taken in May 2001 ($N = 698$; reported in Michalos, 2002). Remarkably, for 18 of the 19 core items, the mean scores are identical (5 items) or a mere tenth of a percentage point different (13). For the remaining Index of Subjective Well-Being mean score, there is a difference of two-tenths of a percentage point. Thus, artistic bias or not, the quality of life of the current sample is practically indistinguishable from that of an earlier representative sample of residents here. As usual, people report highest levels of satisfaction from their living partners and from their families, 6.2 and 5.9, respectively, in both surveys. Highest levels of dissatisfaction are reported for provincial, federal and local governments in both surveys, in that order. What is most interesting about the dissatisfaction scores is the fact that the mean dissatisfaction score of 2.6 for the provincial government in May 2001 was identical to the mean score in the current

TABLE VIII

Levels of domain and global satisfaction, with comparisons to a Prince George survey in May 2001 ($N = 698$)

Domains of life	June 2003 ($N = 315$)	May 2001 ($N = 698$)
Your house	5.7	5.6
Your neighborhood	5.6	5.5
Your family relations	5.9	5.9
Your living partner	6.2	6.2
Your job	5.3	5.2
Your life as a whole	5.7	5.7
Your friendships	5.7	5.8
Your health	5.3	5.4
Your spiritual fulfillment	5.1	5.2
Your financial security	4.5	4.6
Your participation in artistic activities	4.7	na
Your recreation activities	5.0	5.1
Your self-esteem	5.4	5.5
Federal government officials	2.8	2.9
Provincial government officials	2.6	2.6
Local government officials	3.3	3.4
Your overall quality of life	5.6	5.7
Your overall standard of living	5.5	5.4
Your happiness	5.8	5.8
Subjective Well-Being	22.8	22.6

survey, but the earlier survey measured respondents' assessment of the New Democratic government that was about to be defeated in June 2001 and the current survey measured respondents' assessment of the provincial Liberal government that replaced it. It is a pity that we do not know exactly how long it took for residents' dissatisfaction with the new provincial government to reach the same level as that of the old government.

Fifty-five percent of the current sample reported that their general health was excellent (17.6%) or very good (37.5%), compared to 63% in the sample of June 2001. As well, on

average, respondents in the current sample said that their physical health was *not good* on 5.8 days and their mental health was *not good* on 5.4 days out of the past 30 days, compared to 3.2 and 3.1 days, respectively, for respondents in the June 2001 sample. Apparently, then, the respondents for the current sample were not as healthy as those in the earlier sample.

Fifty-four percent of our respondents said that they were members of voluntary organizations such as school groups, sports groups and church social groups. On average, those who were members of such organizations participated in activities sponsored by them 5.8 times per month. For the total sample, 174 respondents said they attended religious services or religious meetings on average twice a month. Because no statistically significant associations were found among these three variables and arts-related or quality of life variables, they will not be mentioned in subsequent analyses.

The next three tables summarize the essential elements of three indexes that were constructed from responses to the 43 Likert items mentioned earlier. These indexes measure respondents beliefs and feelings about the broad functions or effects of the arts. After some explorations with factor analysis failed to reveal useful clusters of items, I simply experimented with some clusters of items that seemed to be conceptually similar. More precisely, I used the Cronbach reliability coefficient alpha to construct three indexes.

Table IX lists the seven items in the Index of Arts as Self-Health Enhancers, along with its alpha value ($\alpha = 0.91$) and item-total correlation coefficients for each item. The index was formed by summing the mean scores on its seven items. It has a scale mean of 27.3, a minimum of 4 and maximum of 35. Higher scores on this index indicate that respondents believe that arts-related activities are good for their health or overall well-being, while lower scores indicate the opposite; i.e., respondents do not believe that arts-related activities are good for their health or overall well-being. An example of items in the scale is: 'My artistic activities contribute to my overall well-being'.

TABLE IX
Index of arts as self-health enhancers, $N = 295$, $\alpha = 0.91$

Item Number	Description: My artistic activities...	% Agreeing or strongly agreed	Item-total corr.
F6	Have positive effect on my life	86.7	0.70
F17	Help me to relax	87.5	0.74
F18	Help relieve stress	83.9	0.77
F19	Contribute to my emotional well-being	84.9	0.83
F21	Help me to stay healthy	61.9	0.71
F23	Help me maintain my energy level	42.2	0.58
F24	Contribute to my overall well-being	82.7	0.81

Table X lists the 11 items in the Index of Arts as Self-Developing Activities, with its alpha value ($\alpha = 0.93$) and item-total correlation coefficients for each item. The index was formed by summing the mean scores on its 11 items. It has a

TABLE X
Index of arts as self-developing activities, $N = 276$, $\alpha = 0.93$

Item Number	Description: My artistic activities...	% Agreeing or strongly agreed	Item-total corr.
F2	Give me self-confidence	67.3	0.76
F3	Give me a sense of accomplishment	75.1	0.63
F5	Are intellectually challenging	64.4	0.58
F8	Increase my knowledge about things around me	72.4	0.63
F9	Provide opportunities to try new things	76.7	0.81
F10	Help me to learn about myself	67.6	0.77
F13	Help me to reveal my thoughts, feelings or physical skills to others	59.8	0.70
F25	Contribute to my self-esteem	74.4	0.79
F26	Help me develop my social skills	56.5	0.60
F27	Help me develop my creativity	70.8	0.80
F28	Help me express my personal identity	65.9	0.75

scale mean of 41.2, a minimum of 11 and a maximum of 55. Higher scores on this index indicate that respondents believe that arts-related activities contribute to their self-development, while lower scores indicate the opposite; i.e., respondents do not believe that arts-related activities make a contribution to their personal development. An example of items in the scale is: 'My artistic activities provide opportunities to try new things'.

Table XI lists the 10 items in the Index of Arts as Community Builders, with its alpha value ($\alpha = 0.90$) and item-total correlation coefficients for each item. The index was formed by summing the mean scores on its 10 items. It has a scale mean of 34.9, a minimum of 8 and a maximum of 50. Higher scores on

TABLE XI
Index of arts as community builders, $N = 290$, $\alpha = 0.90$

Item Number	Description	% Agreeing or strongly agreed	Item-total corr.
F11	My artistic activities help me to learn about other people	67.5	0.72
F12	My artistic activities help me to accept differences among people	67.7	0.67
F14	I have social interaction with others through artistic activities	70.0	0.73
F15	My artistic activities have helped me develop close relationships with others	48.9	0.70
F16	I first met many of my present friends through artistic activities	30.5	0.57
F20	My artistic activities help me feel connected to this community	46.3	0.66
F31	Artists help build community solidarity	63.1	0.65
F40	Artistic activity strengthens a community	75.9	0.61
F41	Artistic activity in a community increases its social capital	55.9	0.54
F43	Artistic activity has contributed a lot to our family development	49.3	0.64

this index indicate that respondents believe that arts-related activities contribute toward social solidarity and stronger communities, while lower scores indicate the opposite; i.e., respondents do not believe that arts-related activities strengthen communities or community bonds. An example of items in the scale is: ‘My artistic activities have helped me develop close relationships with others’.

The only other index employed here is the Index of Subjective Well-Being, which is formed by summing respondents’ scores on four global items, namely, satisfaction with one’s life as a whole, with one’s standard of living and overall quality of life, and happiness. The scale mean on this index is 22.8, its minimum is 3, its maximum 28 and its $\alpha = 0.87$.

The best summary of indicators of respondents’ support for the long list of good things that the arts are supposed to be able to do according to the Campaign to Triple California State Funding to the Arts are contained in our three indexes about the perceived functions or effects of arts-related activities. Tables IX–XI, contain columns with the percentages of respondents agreeing or strongly agreeing with each of the items in the indexes. The Index of Arts as Self-Health Enhancers (Table IX) reveals, for example, that 88% agreed or strongly agreed that their artistic activities helped them “to relax” and 87% thought such activities had “a positive effect” on their lives. The Index of Arts as Self-Developing Activities (Table X) shows that 77% of respondents thought their artistic activities provided “opportunities to try new things” and 75% thought such activities gave them “a sense of accomplishment”. The Index of Arts as Community Builders (Table XI) shows that 76% thought that “artistic activity strengthens a community” and 68% thought such activity helped them “accept differences among people”. These percentages indicate some support (coming from a group of respondents who are generally supportive of the arts) for the instrumentalist view of the arts. There are some other items that did not find their way into one of the indexes, but still indicate support for the instrumentalist view; for example, 79% agreed or strongly agreed that artistic

activities are “good for the local economy”. Comparing the percentages in Tables IX and X with those in Table XI, it seems fair to say that our respondents were more impressed with the arts as useful for personal health and development than for community development.

ZERO-ORDER CORRELATIONS

For present purposes, there are eight salient potential dependent variables included in my questionnaire; i.e., single item measures of general health, satisfaction with life as a whole, recreation, participation in artistic activities, overall quality of life, living standards, happiness and the Index of Subjective Well-Being. Since the first 67 participation and satisfaction items yielded over $3 \times 67 = 201$ scores that might have been correlated with the eight dependent variables, there were $201 \times 8 = 1608$ logically possible associations to measure. Because many items involved very few people, there was no point in trying to measure all logically possible associations. Therefore, I arbitrarily selected $N \geq 30$ as a cutoff figure and examined all zero-order associations for items involving that many respondents. Table XII gives the results of this effort. It includes the 83 correlations that were significant at the $p \leq 0.05$ level or better. Statistically significant zero-order correlations provide a kind of bottom line for examining linear associations. Variables without such correlations to our dependent variables may be safely omitted from multiple regression analyses. Since correlation coefficients cannot identify the direction of causality between significantly related variables, what I am regarding as dependent and independent variables are simply my own constructions.

Of the 83 correlations listed in the Table, only 5 (6%) are negative, which is pretty good evidence that for this group of people, when participation in arts-related activities has a statistically significant association with one or another of our 8 dependent variables, it is usually positive. Satisfaction obtained from buying works of art and gourmet cooking were each positively associated with 6 of the 8 (75%) dependent variables.

TABLE XII

Correlations among time spent on arts-related activities, satisfaction with the activities, general health, domain satisfaction, happiness and subjective well-being, $N \geq 30$, $p \leq 0.05^*$

Item Number	Gen. H.	Life Sat	Rec Sat	Art Sat	QOL Sat	Liv Stan	Happ	SWB
T8a	-0.19	-0.22	0.18	x	x	x	x	x
T9a	x	x	x	x	x	x	-0.40	x
T21a	x	x	x	x	0.20	0.26	x	0.21
T28a	x	x	-0.34	-0.42	x	x	x	x
T50a	x	x	0.36	x	x	x	x	x
T2b	0.37	x	x	0.41	x	x	x	x
T30b	x	x	0.22	0.22	0.24	0.23	x	0.16
T39b	x	x	x	x	0.21	x	0.17	0.17
T57b	x	0.20	0.20	x	x	x	x	0.18
T65b	x	0.15	x	x	x	0.14	x	x
T17c	x	0.19	0.18	0.18	x	x	0.13	0.15
T21c	x	0.28	x	0.21	x	x	x	0.19
T23c	x	x	x	x	0.25	0.30	0.21	0.27
T27c	x	x	x	x	0.31	0.31	x	0.34
T28c	x	0.32	x	x	x	x	x	0.27
T29c	x	0.20	x	x	x	x	0.18	0.19
T30c	x	x	x	x	x	x	0.20	0.16
T36c	0.17	0.19	x	x	0.36	0.14	x	0.17
T37c	x	0.15	x	x	x	x	x	x
T38c	x	0.19	x	x	x	x	0.20	x

TABLE XII
Continued

Item Number	Gen. H.	Life Sat	Rec Sat	Art Sat	QOL Sat	Liv Stan	Happ	SWB
T39c	x	0.25	x	x	0.17	0.19	0.26	0.25
T46c	x	0.38	0.23	x	0.32	0.28	0.35	0.37
T50c	x	x	0.29	0.31	x	x	x	x
T51c	x	0.26	x	x	x	x	x	x
T52c	x	0.25	0.24	0.26	x	x	x	x
T54c	x	x	0.21	0.17	x	x	x	x
T57c	x	0.24	0.23	0.29	x	0.20	0.32	0.29
T65c	x	0.18	x	x	x	x	0.18	x
T66c	x	0.18	x	x	x	x	x	x

* Gen. H. = General Health, Life Sat = Life Satisfaction, Rec Sat = Satisfaction with one's recreation activities, Art Sat = Satisfaction with one's participation in artistic activities, QOL Sat = Satisfaction with the overall quality of life, Liv Stan = Satisfaction with one's standard of living, Happ = Happiness with life as a whole, SWB = Index of Subjective Well-Being, x = not significant. See Appendix for description of each item.

As well, satisfaction obtained from attending museums and reading novels, short stories, plays or poetry were positively associated with 5 of the 8 (63%) dependent variables. Frequency of attendance at amateur live theatre performances was also positively associated with 63% of the dependent variables.

Inspection of the columns in Table XII reveals that general health had the fewest number of significant associations with the 29 potential predictors listed in the extreme lefthand column, and the Index of Subjective Well-Being had the greatest number. The column below 'Gen. H.' shows that playing a musical instrument a number of times per year (T2b) was positively associated with general health ($r = 0.37$), while singing alone a number of hours per week (T8a) was negatively associated with general health ($r = -0.19$). I do not know why singing alone would be negatively related to general health. Perhaps people who often sing alone are not only alone but lonely, which might lead to moderate depression.

The square of these correlation coefficients measures the percent of variance explained by each variable in the pair. Thus, given my constructions of the directions of causality and lacking any other information, one may suppose that playing a musical instrument explained 14% and singing alone explained 4% of the variation in general health scores. The satisfaction obtained from going to movies (T36c) explained 3% of the variance in such scores. When we apply multiple regression analysis later on, we will be able to measure the relative explanatory power of these three predictors in the presence of each other and other predictors as well.

The column of figures below 'Life Sat' shows 17 statistically significant correlations, with 14 of them involving relations between the satisfaction obtained from participating in some arts-related activity and satisfaction with life as a whole. The strongest positive associations with life satisfaction in the column are for satisfaction obtained from gourmet cooking (T46c) and embroidery, needlepoint or cross-stitching (T28c) at $r = 0.39$ and $r = 0.32$, respectively. There is only one significant negative correlation, (T8a) again, at $r = -0.22$.

There is some similarity in the columns of figures below 'Rec Sat' (satisfaction with recreation activities) and 'Art Sat' (satisfaction with participation in artistic activities). The former column has 11 coefficients and the latter has 9, and there are 7 cases in which the same predictor is positively or negatively correlated with each dependent variable. There is one significant negative association in both columns. Hours per week spent on embroidery, needlepoint or cross-stitching (T28a) are negatively correlated with recreation satisfaction ($r = -0.34$) and satisfaction with participation in artistic activities ($r = -0.42$). I have no idea why the association is negative. Hours spent watching art shows on TV (T50a) are positively correlated with recreation satisfaction at $r = 0.36$, which is the strongest relationship indicated in that column, while times per year playing a musical instrument (T2b) are positively correlated with participation in artistic activities satisfaction at $r = 0.41$, the strongest relationship in the other column.

All of the 8 significant correlations in the column below satisfaction with the overall quality of life ('QOL Sat') are positive, led by the satisfaction obtained from going to movies (T36c) at $r = 0.36$, and followed by the satisfaction obtained from gourmet cooking (T46c) at $r = 0.32$ and the satisfaction obtained from knitting or crocheting (T27c) at $r = 0.31$.

The 9 significant correlations in the column below satisfaction with one's standard of living ('Liv Stan') are also all positive, this time led by the satisfaction obtained from knitting or crocheting (T27c) at $r = 0.31$ and the satisfaction obtained from dancing (T23c) at $r = 0.30$. Again, I can not imagine why these two arts-related activities would be particularly influential for anyone's satisfaction with his or her standard of living.

Ten of the Eleven significant correlations in the column below happiness ('Happ') are positive. Hours per week singing in a group (T9a) are negatively associated with happiness at $r = -0.40$. I suppose that would be possible if one preferred not to be singing or not to be in a group or both, but it is unclear why anyone would persist in such activity given such preferences. If that negative association is at all usual for people who sing in groups, some rethinking about the benefits of such

arts-related activities may be required. Indeed, social capital theorists (e.g., Putnam, 1995) might have to do some rethinking about other kinds of group activities too. The satisfaction obtained from gourmet cooking (T46c, $r = 0.35$) and buying works of art (T57c, $r = 0.32$) were the most positive influences on happiness.

All 15 significant correlations below Index of Subjective Well-Being ('SWB') are positive, with the satisfaction obtained from gourmet cooking (T46c) leading the way at $r = 0.37$, followed by the satisfaction obtained from knitting or crocheting (T27c) at $r = 0.34$.

Reflecting on the whole exhibit, it is perhaps worth noting that there are five potential predictors that are significantly correlated with only one dependent variable. Hours spent singing in a group (T9a) are only significantly correlated with happiness, hours spent watching art shows on TV (T50a) are correlated with recreation satisfaction; and the satisfaction obtained from watching movies on video (T37c), watching live theatre on TV (T51c) and visiting the public library (T66c) are each only correlated with life satisfaction.

Table XIII summarizes the zero-order correlations among five dependent variables and the three indexes regarding the functions of arts-related activities. As one might have expected, the strongest associations exist among SWB and three of its constituents (satisfaction with life ($r = 0.83$) and with the quality of life ($r = 0.88$), and 'Happ' ($r = 0.84$)). General health is positively associated with SWB and three of its constituents, but is not significantly correlated with any of the three arts-related indexes. The three arts-related indexes are all positively correlated with each other, running from $r = 0.65$ to $r = 0.77$.

One of the particularly interesting features of the relationships recorded in Table XIII concerns the correlations among the three arts-related indexes and the four most frequently used dependent variables allegedly measuring the quality of people's lives. As I have emphasized in Michalos (2003), the array of significant predictors of the quality of life changes as the dependent variable used to measure the quality of life changes.

TABLE XIII
Correlations among main dependent variables and three arts indexes, $p \leq 0.05^*$

Items	Life Sat	QOL S	Happ	SWB	Comm	S Dev	S Heal	Gen H
Life Sat	-							
QOL S	0.67	-						
Happ	0.63	0.61	-					
SWB	0.83	0.88	0.84	-				
Comm	x	x	0.15	0.13	-			
S Dev	x	x	0.17	0.12	0.77	-		
S Heal	0.12	x	x	0.11	0.65	0.74	-	
Gen H	0.23	0.37	0.27	0.32	x	x	x	-
Rec Sat	0.43	0.51	0.38	0.51	x	x	x	0.27

* Gen. H. = General Health, Life Sat = Life Satisfaction, Rec Sat = Satisfaction with one's recreation activities, QOL S = Satisfaction with the overall quality of life, Happ = Happiness with life as a whole, SWB = Index of Subjective Well-Being, Comm = Index of Arts as Community Builders, S Dev = Index of Arts as Self-Developing Activities, S Heal = Arts as Self-Health Enhancing, x = not significant.

Thus, for example, if one had satisfaction with the overall quality of life as one's only dependent variable, one might conclude that the three arts-related indexes were simply unrelated to the quality of life. (Table XV below would lead to the same conclusion.) On the other hand, if one had the Index of Subjective Well-being as one's only dependent variable, one's conclusion might be exactly the opposite. The latter index is positively correlated with each of the arts-related indexes. Both of these conclusions differ from those that would follow from an examination of correlations with happiness and life satisfaction. I do not have a good explanation for such discrepancies. In the multivariate cases considered in the next section, it is possible that some variables are functioning as suppressors, changing the sign and size of associations. But in the zero-order cases, such an explanation is not possible.

MULTIVARIATE RELATIONS

As explained in several other publications (e.g., Michalos, 1985, 1991), social indicators researchers have not developed many explanatory theories. While I constructed multiple discrepancies theory (Michalos, 1985) to try to bring some theoretical order to the field, more often than not I use a much simpler linear model. Perhaps the earliest model used to explain perceived quality of life operationalized as reported life satisfaction simply assumed that the latter was a function of the satisfaction obtained from specific domains of life, for example, satisfaction with one's family, job, recreation activities and so on. That is, it was assumed that people somehow aggregate the satisfaction obtained from specific domains to construct their overall assessment of their level of satisfaction with life as a whole. Although, this model is conceptually shallow insofar as general satisfaction is finally explained by particular satisfaction, it has been and is a very successful model in terms of its capacity for accounting for the variation in life satisfaction scores. It is often referred to as the Bottom-Up model, in contrast to Top-Down and Bi-Directional models (Mallard et al., 1997). The Bottom-

Up model is applied in the remaining paragraphs of this section.

Stepwise multiple regression was applied to explain the variation in scores for five dependent variables, namely, general health, satisfaction with life and the overall quality of life, happiness and subjective well-being. After discarding potential predictors from those listed in Tables XII and XIII that did not involve at least 100 respondents, my general strategy was to use the predictors in clusters of no more than four at a time in order to systematically eliminate those that failed to reach statistical significance in the presence of others. There was some arbitrariness in this strategy insofar as predictors might perform differently in the presence of different sets of variables. Nevertheless, it was clearly impossible to test all predictors together and this was the only strategy I could think of that would allow me to test every predictor in some context or other. Arts-related activities were examined first, then the three arts-related indexes, then results of these first two rounds were taken together, then domain satisfaction scores alone, and finally the results from the first two rounds taken together were combined with those of the domain satisfaction scores.

Given the array of significant findings regarding the arts and health that were cited in my brief literature review, I was surprised to find that results of applying the routine just described using general health as a dependent variable were not very interesting. At best about 9% of the variance in general health scores could be explained from the available predictors. So, there is no exhibit for general health.

Each of the four remaining Tables (XIV–XVII) is laid out in the same format. The lefthand column lists the names of the predictors. Then there is a column headed ‘Activities’ containing the standardized regression coefficients (Beta values) resulting from regressing the dependent variable on statistically significant arts-related activities plus an arts-related index (for 3 Tables), followed by a column headed ‘Domain S’ containing the Beta values resulting from regressing the dependent variable on significant domain satisfaction scores, and finally a column headed ‘Act + Dom S’ containing the Beta values resulting from

TABLE XIV

Explaining life satisfaction from arts-related activity, arts indexes and domain satisfaction

Predictors	Activities (β)	Domain S (β)	Act + Dom S (β)
T8a: Singing alone, hpw	-0.15	a	-0.18
T65b: Visiting historic sites, dpy	0.12	a	b
T17c: Satisfaction from reading	0.13	a	b
T21c: Sat from reading to others	0.11	a	0.08
T39c: Sat from going to museums	0.11	a	b
T46c: Sat from gourmet cooking	0.14	a	b
Satisfaction with family relations	a	0.15	0.18
Sat with your job	a	0.11	0.11
Sat with your friendships	a	0.23	0.27
Sat with your health	a	0.10	b
Sat with financial security	a	0.10	0.10
Sat with your self-esteem	a	0.36	0.35
Index, arts as self-health enhancing	0.12	a	0.11
Percent of variance explained	11	56	59

a = variable not in equation, b = variable significance too low to enter equation.

regressing the dependent variable on significant variables from the first two columns. Figuratively speaking, a Beta value of x may be interpreted as meaning that if all variables are standardized to have a mean of zero and a standard deviation of one unit, then for every step of one unit in the predictor variable, the dependent variable would move $x\%$ of a step, with the values of all other variables held constant. The bottom row of each column gives the percent of variance explained in the dependent variable by the predictors in that column taken all together.

The first column of figures in Table XIV shows that six arts-related variables could explain 11% of the variation in life satisfaction scores. Four of the six are satisfaction variables, led by satisfaction from gourmet cooking ($\beta = 0.14$) and from reading ($\beta = 0.13$). Thus, for example, on average, for every increase of a full unit step of satisfaction obtained from gourmet cooking, respondents got an increase of 14% of a step in

TABLE XV

Explaining satisfaction with the overall quality of life from arts-related activity, arts indexes and domain satisfaction

Predictors	Activities (β)	Domain S (β)	Act + Dom S (β)
T30b: Going to amateur live theatre	0.14	a	b
T23c: Sat from dancing	0.12	a	b
T39b: Going to other museums	0.14	a	0.07
T46c: Sat from gourmet cooking	0.15	a	b
Satisfaction with family relations	a	0.14	0.14
Sat with your spiritual fulfillment	a	0.12	0.12
Sat with your friendships	a	0.07	0.10
Sat with your health	a	0.26	0.25
Sat with financial security	a	0.24	0.24
Sat with your self-esteem	a	0.27	0.26
Percent of variance explained	7	58	58

a = variable not in equation, b = variable significance to low to enter equation.

TABLE XVI

Explaining happiness from arts-related activity, arts indexes and domain satisfaction

Predictors	Activities (β)	Domain S (β)	Act + Dom S (β)
T46c: Sat from gourmet cooking	0.15	a	b
T57c: Sat from buying works of art	0.12	a	b
T39c: Sat from going to museums	0.12	a	b
Satisfaction with family relations	a	0.13	0.14
Sat with your living partner	a	0.15	0.17
Sat with financial security	a	0.18	0.21
Sat with your self-esteem	a	0.40	0.37
Index, arts as self-developing	0.17	a	0.18
Percent of variance explained	8	39	42

a = variable not in equation, b = variable significance to low to enter equation.

TABLE XVII

Explaining subjective well-being from arts-related activity, arts indexes and domain satisfaction

Predictors	Activities (β)	Domain S (β)	Act + Dom S (β)
T23c: Sat from dancing	0.12	a	b
T46c: Sat from gourmet cooking	0.21	a	b
Satisfaction with family relations	a	0.19	0.19
Sat with your health	a	0.14	0.14
Sat with your friendships	a	0.09	0.09
Sat with your living partner	a	0.10	0.11
Sat with financial security	a	0.28	0.30
Sat with your self-esteem	a	0.36	0.35
Index, arts as community builders	0.13	a	0.11
Percent of variance explained	5	64	65

a = variable not in equation, b = variable significance too low to enter equation.

life satisfaction. Hours per week singing alone was the most influential predictor and it is still negative ($\beta = -0.15$). The second column of figures shows that six domain satisfaction scores alone could explain 56% of the variance in life satisfaction scores, with satisfaction with one's own self-esteem leading the others by quite a bit ($\beta = 0.36$), followed by satisfaction with one's friendships ($\beta = 0.23$). In the final column, we see that eight predictors combined to explain 59% of the variance in life satisfaction scores, with self-esteem satisfaction ($\beta = 0.35$) and friendship satisfaction ($\beta = 0.27$) still leading the way. Of the arts-related variables, singing alone remains fairly strong and negative ($\beta = -0.18$), while the satisfaction obtained from reading to others remains at ($\beta = 0.08$) and the Index of Arts as Self-Health Enhancers also remains ($\beta = 0.11$). The latter value means that, holding the impact of all other predictors constant, if one's belief that the arts improve one's health or overall well-being increased a full unit then one's life satisfaction would increase 11%; i.e., briefly, believing that the arts are good for respondents' health increases respondents' satisfaction with life as a whole.

Summarizing these results, then, it seems fair to say that the arts do not have a great impact on the life satisfaction of a sample of residents of Prince George who generally care about the arts. Taking into consideration all the arts-related activities, satisfaction obtained from such activities and indexes of beliefs about the functions the arts, and nothing else, at best we could explain 11% of the variation in life satisfaction scores. When these results were combined with a set of domain satisfaction predictors, we could only increase our total explanatory power by 3 percentage points. So, in the context or presence of the satisfaction respondents got from their own self-esteem, their friendships, family relations and so on, arts-related variables were not very influential. Nor were these variables very influential on their own, since they left 89% of the variance in life satisfaction unexplained.

Table XV shows, first, that four arts-related variables could explain 7% of the variance in satisfaction with the overall quality of life scores. The satisfaction obtained from gourmet cooking was most influential ($\beta = 0.15$), but practically indistinguishable from time spent going to amateur live theatre ($\beta = 0.14$) and going to other (non-art) museums ($\beta = 0.14$). Second, 58% of the variance in satisfaction with the overall quality of life scores could be explained by six domain satisfaction scores, led by a cluster of variables including satisfaction with self-esteem ($\beta = 0.27$), health ($\beta = 0.26$) and financial security ($\beta = 0.24$). When all the predictors were combined, seven remained with significant explanatory power, but the total variance explained remained unchanged at 58%. The cluster just mentioned remained most influential, with similar Beta values; self-esteem ($\beta = 0.26$), health ($\beta = 0.25$) and financial security ($\beta = 0.24$). Of the arts-related predictors, only time spent going to other museums remained significant, with its Beta value reduced by half ($\beta = 0.07$). Summarizing these results, it may be said that when our dependent variable is satisfaction with the overall quality of life, in the presence of domain satisfaction predictors, arts-related predictors do not increase explanatory power at all.

Table XVI shows, first, that four arts-related predictors could explain 8% of the variance in happiness scores. The Index of Arts as Self-Developing Activities was most influential ($\beta = 0.17$), followed by the satisfaction obtained from gourmet cooking ($\beta = 0.15$). Second, four domain satisfaction predictors could explain 39% of the variance in happiness scores, led by self-esteem satisfaction ($\beta = 0.40$) and followed at some distance by financial security satisfaction ($\beta = 0.18$). When all the predictors were combined, five remained with significant explanatory power, including the arts-related index. The total variance explained rose slightly to 42%, with the most influential predictors including satisfaction with self-esteem ($\beta = 0.37$) and financial security ($\beta = 0.21$), followed by the Index of Arts as Self-Developing Activities ($\beta = 0.18$). Again, briefly, the latter value means that believing that the arts contribute to respondents' self-development increases respondents' happiness. Summarizing these results, then, it may be said that when our dependent variable is happiness, arts-related predictors are not very influential; i.e., the latter add 3 percentage points of explanatory power to that obtained from domain satisfaction scores.

Table XVII shows, first, that three arts-related predictors could explain 5% of the variance in subjective well-being scores, with the satisfaction obtained from gourmet cooking most influential ($\beta = 0.21$) and the Index of Arts as Community Builders following ($\beta = 0.13$). Second, six domain satisfaction predictors could explain 64% of the variance in subjective well-being scores, with satisfaction with one's self-esteem leading ($\beta = 0.36$), followed by financial security satisfaction ($\beta = 0.28$). When all the predictors were combined, seven remained with significant explanatory power. The total variance explained rose by a single percentage point to 65%. The most influential predictors were still self-esteem satisfaction ($\beta = 0.35$) and financial security satisfaction ($\beta = 0.30$). The Index of Arts as Community Builders remained with modest influence, ($\beta = 0.11$); i.e., believing that the arts help build strong communities increases respondents' subjective well-being. In sum, when our dependent variable is subjective well-being, arts-re-

lated predictors add practically nothing to the explanatory power already achieved from domain satisfaction scores.

CONCLUSION

The aim of this investigation was to measure the impact of the arts broadly construed on the quality of life. A randomly drawn household sample of 315 adult residents (aged 18 years and older) of Prince George, British Columbia served as the working data-set. Because women and people with university degrees or college diplomas were considerably over-represented in the sample, according to the 2001 population census, the sample could not be regarded as representative of the city population. It may be representative of those residents of the city with a particular interest in the arts, but I have no way of confirming that. In any case, it would be hazardous for anyone to generalize the findings reported here beyond the sampled population.

A mailed-out questionnaire identified 66 arts-related activities and obtained information on respondents average weekly and yearly participation rates, as well as levels of satisfaction with their participation. Among other things, it was found that 89% of respondents listened to music on average 13.5 hours per week, with an average satisfaction level of 5.9 on the 7-point satisfaction scale; 73% reported that they read novels, short stories, plays or poetry on average 8.3 hours per week, with an average satisfaction level of 6.2; 71% went to movies (cinema) on average 5.6 times per year, with an average satisfaction level of 5.5 and 67% of respondents visited historic sites on average 2.4 times per year, with an average satisfaction level of 5.8. There was no significant correlation between the average amount of time spent on activities and the average level of satisfaction obtained from them.

On hearing the words 'arts' or 'artistic activity', about 19% said that the first thing they thought of was 'acting/theatre' and 18% said 'painting/drawing'. Thirty percent said

the *most important* arts-related activity for them was 'music/symphony' and 14% said 'acting/theatre'. Thirteen percent identified the following statement as expressing their own feelings about their most important arts-related activity; 'My artistic activities contribute to my overall well-being'. On average, on a 7-point scale, people reported that they were satisfied with their access to information about their most important arts-related activity (5.3), to the arts facility housing the activity (5.1) and to the activity itself (5.3). They were roughly equally satisfied with the price (5.0) and the place of the activity (5.2). On the other hand, they were dissatisfied with city (3.7), provincial (3.1) and federal (3.0) government support for the activity. The largest percentage (48%) first learned about their most important activity in school, while the three largest percentages following that were listening to the radio (28%) and to a parent (27%), and watching television (26%).

People report highest levels of satisfaction from their living partners and from their families, 6.2 and 5.9, respectively. Highest levels of dissatisfaction were reported for provincial, federal and local governments in both surveys, in that order. Fifty-five percent of the sample reported that their general health was excellent (17.6%) or very good (37.5%).

Three indexes were created to measure respondents' views about the functions of arts-related activities, namely, an Index of Arts as Self-Health Enhancers ($\alpha = 0.91$), Index of Arts as Self-Developing Activities ($\alpha = 0.93$) and an Index of Arts as Community Builders ($\alpha = 0.90$).

Examining zero-order correlations, among other things, it was found that playing a musical instrument a number of times per year was positively associated with general health ($r = 0.37$), while singing alone a number of hours per week was negatively associated with general health ($r = -0.19$). The strongest positive associations with life satisfaction are satisfaction obtained from gourmet cooking and embroidery, needlepoint or cross-stitching, at $r = 0.39$ and $r = 0.32$, respectively. The satisfaction obtained from gourmet cooking ($r = 0.35$) and buying works of art ($r = 0.32$) were the most

positive influences on happiness. The strongest associations with the Index of Subjective Well-Being are the satisfaction obtained from gourmet cooking ($r = 0.37$) and the satisfaction obtained from knitting or crocheting ($r = 0.34$).

Examining multivariate relations, it was found that eight predictors combined to explain 59% of the variance in life satisfaction scores, with self-esteem satisfaction ($\beta = 0.35$) and friendship satisfaction ($\beta = 0.27$) most influential. Among the arts-related predictors in the eight, singing alone was fairly influential and negative ($\beta = -0.18$), while the satisfaction obtained from reading to others ($\beta = 0.08$) and the Index of Arts as Self-Health Enhancers ($\beta = 0.11$) were somewhat less influential. When the arts-related predictors were combined with a set of domain satisfaction predictors, total explanatory power was increased by only 3 percentage points.

Seven predictors could explain 58% of the variance in satisfaction with the overall quality of life scores, led by satisfaction with self-esteem ($\beta = 0.26$), health ($\beta = 0.25$) and financial security ($\beta = 0.24$). Of the arts-related predictors, only time spent going to non-art museums was significant ($\beta = 0.07$). Arts-related predictors did not increase explanatory power at all beyond that obtained from domain satisfaction variables alone.

Eight predictors explained 42% of the variance in happiness scores, with the most influential predictors including satisfaction with self-esteem ($\beta = 0.37$) and financial security ($\beta = 0.21$), followed by the Index of Arts as Self-Developing Activities ($\beta = 0.18$). Arts-related predictors added 3 percentage points of explanatory power to that obtained from domain satisfaction scores.

Seven predictors could explain 65% of the variance in scores on the Index of Subjective Well-Being, led by self-esteem satisfaction ($\beta = 0.35$) and financial security satisfaction ($\beta = 0.30$). The Index of Arts as Community Builders had a modest influence ($\beta = 0.11$), but all together, arts-related predictors increased our total explanatory power by a single percentage point.

Summarizing these multivariate results, it seems fair to say that, relative to the satisfaction obtained from other domains of life, the arts had a very small impact on the quality of life (measured in four somewhat different ways) of a sample of residents of Prince George who generally cared about the arts. Even in absolute terms, arts-related activities could only explain from 5% to 11% of the variance in four plausible measures of the self-perceived quality of respondents' lives.

NOTES

¹ This paper has been written for presentation at the International Conference on Quality of Life in a Global World, November 14–15, 2003, at Chinese University of Hong Kong. I would like to thank the following people for their help with the design of the questionnaire and administration of the survey: Stuart Antonenko, Broek Bosma, Tracy Boychuk, George Harris, Doug Hofstede, Joan Jarman, James Terell Jones, Tom Madden, Tracy McCall, Alison Nussbaumer, Julie Orlando, George Paul, Ted Price, Claudia Reich, Christine Russell, Kathleen Soltis, Virginia Sprangers, Penny Stewart, Mary Taschner and Edel Toner-Rogala. Julie Orlando prepared the Appendix 1.

APPENDIX

Most activities had some people indicating they spent a certain number of hours per week on it, while other people only did it a few times per year. For those activities, the two Ns listed are first for “hours per week” and then for “times per year”. The “average satisfaction level” amalgamates all respondents. For example, for T1, 280 people listen to music an average of 13.5 hours a week, while another 12 people listen to music only an average of 91.67 times per year. Together, they all indicate that listening to music gives them an average satisfaction level of 5.92

Particular Activities	(a) Hours per week or	(b) Times per year	(c) Average satisfaction level	N
T1. Listening to music	13.5	91.67	5.92	280/12
T2. Playing a musical instrument	3.09	5.00	5.40	39/30
T3. Writing music	1.60	3.14	5.25	5/7
T4. Teaching people to play an instrument	1.83	12.11	4.47	6/9
T5. Painting or drawing	6.16	14.32	5.62	37/50
T6. Teaching painting or drawing	2.61	4.29	4.85	9/7
T7. Teaching singing	1.63	8.14	5.25	4/7
T8. Singing alone	4.27	47.57	5.30	121/14
T9. Singing in a group	2.27	5.22	5.67	30/18
T10. Creating pottery or ceramics	2.20	1.82	5.50	5/11
T11. Creating sculptures (e.g., clay, stone, wood)	6.50	3.50	6.06	8/12
T12. Taking children to arts-related events or activities	2.72	5.02	5.64	25/83
T13. Teaching sculpture	5.00	3.00	5.50	1/2
T14. Designing clothes	1.00	3.87	5.60	1/15
T15. Making clothes	6.50	6.75	5.70	12/44
T16. Making quilts	8.88	4.61	6.39	16/23

Appendix
Continued

Particular Activities	(a) Hours per week or	(b) Times per year	(c) Average satisfaction level	N
T17. Reading novels, short stories, plays or poetry	8.32	35.68	6.19	231/41
T18. Attending a book club	3.75	5.60	5.71	4/10
T19. Writing novels, short stories, plays or poetry	4.02	5.20	5.97	21/20
T20. Telling stories	3.25	9.70	5.68	61/23
T21. Reading to others	3.26	8.87	6.02	92/30
T22. Teaching people creative writing	2.35	13.33	5.00	10/6
T23. Dancing	3.98	5.90	5.78	29/69
T24. Teaching people to dance	3.50	3.88	5.92	6/8
T25. Weaving textiles	10.00	2.00	6.67	1/3
T26. Weaving baskets	—	1.00	7.00	0/1
T27. Knitting or crocheting	10.94	18.48	6.11	35/31
T28. Embroidery, needlepoint or cross-stitch	7.04	6.67	6.15	36/42
T29. Going to concerts	2.50	3.22	5.96	2/194
T30. Going to amateur live theatre	2.67	2.61	5.87	3/166
T31. Going to professional live theatre	4.00	2.85	6.18	4/145
T32. Going to school plays	3.80	1.89	5.81	5/93
T33. Acting with professional live theatre group	1.00	1.50	6.67	1/2
T34. Acting with amateur theatre group	3.00	5.40	7.00	1/5
T35. Working with amateur theatre group (other than acting)	4.00	3.63	6.40	2/8
T36. Going to movies	2.29	5.55	5.45	17/225

Appendix
Continued

Particular Activities	(a) Hours per week or	(b) Times per year	(c) Average satisfaction level	N
T37. Watching movies on video	5.11	17.01	5.40	151/134
T38. Going to art museums/galleries	2.78	3.52	5.59	9/163
T39. Going to other museums	3.44	2.66	5.67	9/137
T40. Artistic photography	2.63	6.69	5.89	15/29
T41. Designing a garden	5.88	2.76	6.00	42/93
T42. Arranging flowers	1.53	8.56	6.00	17/66
T43. Creating jewelry	1.00	4.38	5.86	1/13
T44. Decorating a home	2.86	2.75	5.73	29/144
T45. Figure skating	1.00	3.59	5.48	1/22
T46. Gourmet cooking	6.00	8.09	5.94	55/65
T47. Teaching people gourmet cooking	2.00	4.25	6.00	1/8
T48. Making artistic videos or movies	—	1.71	6.17	0/7
T49. Graphic designing	10.33	13.91	6.00	3/11
T50. Watching art shows on TV	2.69	6.71	5.50	45/62
T51. Watching live theatre on TV	2.08	3.46	5.89	13/50
T52. Watching concerts on TV	2.86	4.81	5.65	21/147
T53. Watching opera on TV	2.33	3.00	5.77	6/28
T54. Attending community festivals	2.83	2.54	5.53	6/167
T55. Working on community festivals	6.40	2.09	6.12	5/32
T56. Attending a class related to artistic work	9.33	4.26	5.94	6/31
T57. Buying works of art	2.00	2.09	6.10	4/116

Appendix
Continued

Particular Activities	(a) Hours per week or	(b) Times per year	(c) Average satisfaction level	N
T58. Selling works of art	16.00	12.67	5.69	1/12
T59. Volunteering in the arts	12.56	5.04	5.84	9/23
T60. Working for pay in the arts	22.00	7.88	6.17	5/8
T61. Serving as a judge for the arts	2.00	2.18	6.08	1/11
T62. Acting as an advocate for the arts	5.00	6.82	5.95	3/17
T63. Making donations to the the arts	4.00	2.57	6.02	1/65
T64. Designing, crafting furniture	-	6.74	6.29	0/23
T65. Visiting historic, heritage sites	4.60	2.42	5.84	5/210
T66. Visiting the public library	3.15	10.38	5.89	40/186
T67. Other	6.45	12.08	5.86	11/13

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APPARENT QUALITY-OF-LIFE IN NATIONS: HOW LONG AND HAPPY PEOPLE LIVE¹

(Accepted 3 April 2004)

ABSTRACT. Quality-of-life in nations can be measured by how long and happy people live. This is assessed by combining data on life expectancy drawn from civil registration with survey data on subjective enjoyment of life as a whole. This measure of ‘apparent’ quality-of-life is a good alternative to current indexes of ‘assumed’ quality-of-life such as the Human Development Index. Data are available for 67 nations in the 1990s. The number of Happy-Life-Years varies considerably across nations. Switzerland is at the top with 63.0 years and Moldavia at the bottom with 20.5 years. China is in the middle with an average of 46.7. Happy lifetime has risen considerably in advanced nations over the last decade. People live longer and happier in nations characterised by economic affluence, freedom and justice. Together these three societal qualities explain 66% of the cross-national variance in Happy-Life-Years. Income equality and generous social security do not appear to be required for a long and happy life.

KEY WORDS: cross-national, happiness, happiness adjusted life years, life expectancy, quality of life

INTRODUCTION

When speaking about ‘quality-of-life’ in a nation we denote how well its citizens live. There are two ways to assess how well people live. One is to consider to what extent the country provides conditions deemed essential for a good life. In this approach the emphasis is on societal *input*. Since there is little certainty about what people really need, I call this ‘presumed’ quality-of-life. The other approach is to assess how well people thrive. In this approach the emphasis is on societal *output*.² I call this ‘apparent’ quality of life (Veenhoven, 1996).

An analogy may illustrate this distinction: the case of ‘fertility’ of the soil. If we want to know whether a piece of land is

well suited for growing grain, we can estimate the input that the soil provides or consider the output it has yielded earlier.

In the input approach, we consider the structure of the soil, its percentage of moisture, the minerals and nutrients it contains, etc., because we know fairly well what grain needs and to what conditions it can adapt, we can predict fairly accurately how well the grain will grow on that soil.

In the output approach we consider the harvest. We then look at the quantity and quality of the grain harvested. Historically the fertility of land has been established in the latter way, that is, through experience (output).

The living conditions of grain can now be specified reasonably well, but the necessary living conditions for humans are less easy to specify. Not only are the humans more complicated and many-sided than grain they are also much more adaptable. In fact, a major biological specialization of the human species is its lack of specialism, combined with a capacity for learning. Therefore, the possible range of, and variation in livable societies for humans is far greater than the possible range of soils and variations in those soils that will support the fruitful growth of grain. Soil requirements for grain can be assessed experimentally, yet controlled experiments on humans and human societies are almost impossible and could not be supported ethically.

Let us keep this in mind and now consider current estimates of quality-of-life in nations.

Input Approach: 'Presumed' Quality-of-life

Most measures of quality-of-life in nations assess presence of conditions such as material affluence, schooling, political freedom and social security. There are at least two problems with this approach:

The first problem is that the need for these inputs can be questioned. Consider the example of 'social security'. Do we really need compulsory income insurance? Though there is wide public support for such arrangements, it is doubtful that we really 'need' them.

The second problem in this approach is the assumption that more of such conditions makes life better. Let us consider the case of income. A minimum level of income is certainly required, but wealth seems to be subject to satiation. The human species developed in conditions we would characterize as 'poor' by present day standards, so we can apparently live without luxury.

The assumptions underlying current input indicators have little ground in sound theory about human needs. The assumptions about the good life are rather rooted in bad experience and in ideology. Present QOL indicators typically reflect Western memories of poverty and inequality. Positively they reflect Western Enlightened creed. I have discussed the weaknesses of this approach in more detail elsewhere (Veenhoven, 1996, 2000a)

Output Approach: 'Apparent' Quality-of-life

The flourishing of plants or animals in a given ecological environment is usually measured by their functioning as apparent in growth, adequacy of behavior and absence of disease. Can the flourishing of humans in a social environment be measured by the same criteria?

Human thriving also manifests physically, particularly in good health and a long life. Therefore, we can infer the quality-of-life in a nation from the *health* of its citizens, however, the flourishing of humans involves more than biological functioning alone. Unlike plants and animals, humans can reflect on themselves and their situation. The fit with environmental demands is therefore also reflected in their appraisal of life. As such we can also infer quality-of-life in a nation from the citizen's *happiness*.

The two approaches to the measurement of quality-of-life in nations are summarized in Table I; the latter method is elaborated in this paper.

INDICATORS OF 'APPARENT' QUALITY-OF-LIFE IN NATIONS

Inferring quality-of-life from the 'health' and 'happiness' of citizens in a country is less easy than it seems. What do these terms mean precisely? How can these matters be measured?

TABLE I
Approaches to the measurement of quality-of-life in nations

Concept variants	Quality-of life in nation	
	Assumed	Apparent
Observable manifestations	Presence of conditions deemed essential for a good life, such as: <ul style="list-style-type: none"> – Economic affluence f.e. GNP – Political freedom f.e. Legal rights – Social equality f.e. Income equality – Access to knowledge f.e. Literacy rate – Etc. . . 	Flourishing of citizens as apparent in: <ul style="list-style-type: none"> Good health – Physical – Mental Happiness
Comprehensive indicators	Various sum-scores: <ul style="list-style-type: none"> – Human development index – Index of social progress Etc. . . 	Happy life years

Measures of Health in Nations

As in the case of plants and animals, the flourishing of humans can be judged by looking at their bio-physiological functioning, in other words by their 'health'.

Measures of Physical Health

The analogy with how plants flourish applies best where only bio-physiological functioning is concerned; this is also called 'physical health'. The physical health of organisms can be defined in two ways: one by absence of disease or impairment, two by signs of good functioning, such as energy or resilience. The former aspect of bio-physiological functioning is referred to as 'negative health', the latter as 'positive health' (Seedhouse, 1986). The less negative and the more positive the physical health of citizens, the better the quality-of-life in their country is apparently.

The incidence and severity of impairments and disease can give a measure negative of health. This sounds easier than it is. Medical statistics say more about medical consumption than about illness. The available figures on illness are typically limited to 'incidence' and do not give us any information regarding 'severity'. Moreover, medical statistics typically concern 'specific' health defects and mostly do not give an overview of the 'overall' health situation in a country. Some attempts have been made to characterize overall health in nations, but unfortunately these are as yet not sufficiently standardized to allow international comparison.

Positive health can be measured by performance tests and by subjective reports about feelings of health. The latter indicators typically concern overall health. Periodical health surveys are used to monitor health feelings in several Western nations. Though the items used are quite diverse, some allow international comparison in a sizable number of nations. At this moment the best source is the subjective health item in the World Values Survey.

Health can also be measured by longevity. The number of years people live is assessed on the basis of civil registration of birth and death. This is not a problem for the generations that have passed away, however, for the living we must do with estimates. Life 'expectancy' is estimated on the basis of observed survival rates in age-cohorts. Average length of life in a country is commonly expressed in 'life-expectancy' at birth.

A long life is not necessarily a healthy life. Life expectancy may be high in a nation' but average health low. Extra years may be bought at the cost of a lot of illness. Therefore, health in nations is also measured by the average number of years people live free from chronic illness. This is expressed in Disability Adjusted Life Years (DALY's). Data on this matter has recently become available for a lot of countries (WHO, 2001 Annex Table 3).

Measures of Mental Health

Instead of focusing on 'bio-physiological' functioning, one can also consider the adequacy of 'socio-psychological' functioning.

This is what commonly is referred to as 'mental health'. Like in the case of physical health, there is also a difference between 'negative' and 'positive' mental health (Jahoda, 1958) and again the quality-of-life in a nation is apparently better the less disturbed people are and the more positively they function.

There is nothing wrong with this idea, but there are great problems in its operationalization. It is not easy to establish who is mentally 'ill' or not. Cross-national comparison is hampered by differences in manifestations of psychological disturbance, as well as differences in what constitutes a definition of mental 'illness' and how it is registered. This limits the use of this indicator to countries, which are culturally very similar. The measurement of positive mental health is still in its infancy and doesn't allow any cross-national comparison at all.

Measures of Happiness in Nations

Next to mere 'functioning', the thriving of humans can also be inferred from their 'happiness'. Humans can comprehend their situation. Like other higher animals they experience affects. These affective appraisals are highly indicative for the quality-of-life. The biological function of these faculties is to lead the organism to the best-suited conditions.³ Positive affect is generally indicative of good adaptation. Contrary to other animals humans are also able to appraise their situation cognitively. Positive judgement of life is generally indicative of good adaptation.

The degree to which inhabitants of a nation feel happy can be assessed in different ways: indirectly by inferring from their behaviors and directly by asking how they feel about their life. Historically social scientists have preferred the former method. Today it is clear that only the latter is viable for this purpose.

Behavioral Manifestations

Traditionally, the happiness of citizens in a nation was measured by the incidence of behaviors deemed indicative of despair. This approach does not require that people are fully aware

of their malaise. Behavioral reactions can be affect driven or subconscious. Therefore, similar indicators are used for estimating the well-being in animals. Aggression, and self-mutilation and stereotypic behavior (i.e., pacing in a predetermined path back and forward by a caged lion) are often mentioned as indicative of despair in captive animals. Among wild animals migration can sometimes be seen as a way of escaping an increasingly inhostile environment. (i.e., the migration of game in response to the ruins in Africa)

Despair. Suicide rates are often used as an indicator of unhappiness in nations. This tradition dates back to Durkheim (1897). In this vein, the continuous rise of suicide in Western nations in the 20th century has been interpreted as showing that modernization reduces the quality-of-life.

There is probably some truth in the idea that general unhappiness gives rise to high suicide rates. Yet it is also clear that the incidence of suicide depends on many other things. In present day, Western society, suicide rates may be rising because it is no longer taboo and because medical technology is used to postpone natural death. It is also possible that modern people are less willing to endure suffering. As in the case of other despair behaviors, these effects are not equally great in all societies at all times.

Protest and Desert. Unhappiness is also seen to reflect in protest-behaviors, in purposeful political action (protest demonstrations, protest voting, etc) as well as in undirected rioting. In this line, the student revolts around 1970 have been interpreted as showing declining happiness in modern nations. Here again the problem is that these behaviors do not necessarily reflect personal dissatisfaction with life. One can be quite happy, but still be concerned about social injustice. Studies on participants in the 1960s–1970s student rebellions illustrate this point (Keniston, 1968). In fact, personal satisfaction may even facilitate engagement in social issues. Another thing, protests are typically concerned with specific aspects of society, and are therefore not very indicative of overall satisfaction with life.

Emigration seems more indicative of happiness in a nation, the decision to leave a country involves an overall evaluation of life in it. In this vein, Ziegler and Britton (1981) showed that living conditions in emigration countries are typically poor. Yet, emigration may say more about opportunity to settle abroad than about the quality-of-life in the country, also, expectations about a better life elsewhere do not necessarily mean that the quality-of-life in one's home country is poor.

Self-reports

Though higher animals have the faculty of affective experience, they are typically unable to reflect on that experience and communicate it. We humans can. We can appraise how we feel about life and can communicate the estimate.

When we appraise how much we like the life we live, we seem to use two sources of information. We estimate our typical affective experience to assess how well we feel generally (hedonic level of affect) and at the cognitive level we compare 'life as it is' with standards of 'how life should be' (contentment). The former affective source of information seems generally more important than the latter cognitive one (Veenhoven, 1991, 1995).

The word happiness is commonly used for these 'subtotals' and for the comprehensive appraisal. I use the terms 'overall' happiness or 'life-satisfaction' for the last judgement and refer to the affective and cognitive sub-appraisals respectively as 'hedonic level of affect' and 'contentment'. Elsewhere, these concepts are delineated in more detail (Veenhoven, 1984: ch 2).

Survey Questions on Happiness. Happiness can be measured by self-report. Various questions have been developed for this purpose. All items and scales can be found in the 'Item bank' of the 'World Database of Happiness' (WDH, 2003). The most commonly used item reads as follows:

"Taking all together, how satisfied or dissatisfied are you currently with your life as a whole?"

Since the 1970s, such questions have been included in many 'Quality-of-Life' surveys all over the world. There is now a growing body of data on happiness in nations. Presently there are comparable surveys in 67 nations. The data have been brought together in the 'WDH'; section 'Distributional Findings in Nations' (WDH, 2003).

Measure of Happy-Life-Years

Above we have seen that the best measure of health in nations is how long people live and that the best measure of happiness is self reported satisfaction with life-as-a-whole. Both measures are indicative of how well people thrive in a country, but neither of them captures this matter completely. One could at least imagine that people live long in a country but not happily, for instance because blind use of medical technology stretches out life and makes it too long. Likewise, one could imagine that people live happy in a country but not long, possibly as a result of too much indulgence.

That problem is solved when these measures are combined. Analogous to the measure of 'DALY's' mentioned above, one could compute 'Happiness Adjusted Life Years'. Below I will show how. I call this measure Happy-Life-Years (HLY).

Computation. The number of years citizens live happily in a country can be measured by combining information about length of life drawn from civil registrations of birth and death with data on overall appreciation of life as assessed in surveys. The following simple formula can be applied:

$$\text{Happy-Life-Years} = \text{Life-expectancy at birth} \times 0-1 \text{ happiness.}$$

Suppose that life expectancy in a country is 50 years, and that the average score on a 0–10-step happiness scale is 5. Converted to a 0–1 scale, the happiness score is then 0.5. The product of 50 and 0.5 is 25. So the number of HLY is 25 in this country. If life expectancy is 80 years and average happiness 8, the number of HLY is 64 (80 × 0.8).

Theoretically, this indicator has a broad variation. The number of HLY is zero if nobody can live in a country, and infinity if society is ideal and its inhabitants immortal. The practical range will be between about 20 and 75 years. Presently at least, life expectancy at birth varies in nations between 30 and 80, whereas average happiness is seldom lower than 0.4 on a 0–1 scale and seldom higher than 0.8. The number of HLY will always be lower than standard life expectancy. It can equal real length of life only if everybody is perfectly happy in the country (score 1 on scale 0–1).

A high HLY means that citizens live both long and happily while a low HLY implies that the life of the average citizen is short and miserable. Medium HLY values can mean three things: (1) moderate length-of-lives and moderate appreciation-of-lives, (2) long but unhappy lives, and (3) short but happy lives.

In my opinion, this measure is the most comprehensive indicator of apparent quality of life in nations that we can have. The measure has also a clear meaning and appeals to common sense. Most people will agree that it is good to live long and happily. It is not for nothing that fairy tales end with sentiments like: they lived long and happy ever after.

I have described this indicator in more detail elsewhere (Veenhoven, 1996, 2000a). It scored highest in a scholarly review of quality-of-life indicators for national policy (Hagerty e.a. 2001).

CROSS NATIONAL DIFFERENCES IN HLY

Using this measure of HLY, we can now compare apparent quality of life in nations. Data on HLY in nations are published on the World Database of Happiness (2003). This continuous register of research on subjective enjoyment of life is updated regularly. Currently it provides data on 67 nations in the 1990s. These data are presented on Appendix A. Table II presents some illustrative cases.

TABLE II
Happy-Life-Years in nations in the 1990s: some illustrative cases

Top > 58 years		Middle range ± 41 years		Bottom < 30 years	
Switzerland	63.0	Philippines	43.7	Georgia	29.7
Iceland	61.8	Greece	41.4	Russia	27.8
Denmark	59.9	Turkey	40.4	Armenia	26.2
Sweden	59.9	Hungary	38.5	Ukraine	22.5
Ireland	58.4	Bolivia	37.5	Moldavia	20.5

TREND IN HLY

Time series are available for a few nations, for the USA since 1948, for Japan since 1958 and for the first member states of the European Union since 1973. All these nations have witnessed a rise in the number of HLY. This is mainly because life expectancy has been augmented in all these nations, but in several cases HLY has also been boosted by a rise in average happiness. The most spectacular case of this kind is Italy, where HLY has risen by 12 years since 1973.

Figure 1 presents the longest available time series, that of the USA 1948–1998. Americans have gained Seven HLY over these

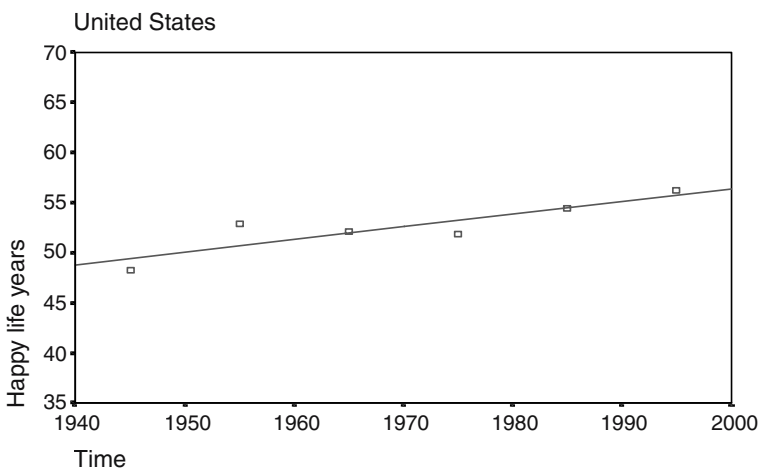


Figure 1. Happiness adjusted life years in the USA 1948–1998.

50 years. Since average happiness has remained at the same level over this period, this rise in HLY is entirely due to a rise in life expectancy. In this case, the proportional rise in HLY illustrates that this rise in length of life was not gained at the cost of lower quality of life. If the extra years of life had been spent in misery, HLY would have lagged or could even have declined.

SOCIETAL CORRELATES OF HLY

The next question is of course whether these differences in ‘apparent’ quality-of-life in nations have any correspondence with the earlier mentioned notions of ‘assumed’ quality-of-life. Is HLY higher in the nations that perform best on these standards?

To answer that question I inspected the statistical relationship between HLY and five societal qualities that are currently seen as required for a good life. These qualities are: (1) material wealth, (2) freedom, (3) social equality, (4) solidarity, and (5) justice. The indicators used for this purpose are enumerated in Appendix B.

The analysis involves three steps: The first step is to assess how each of these societal characteristics relates to HLY, to do this I plotted scattergrams and computed zero-order correlations. Next I inspected to what degree the observed correlations could be attributed to differences in economic development across nations. To do this I computed partial correlations, controlling for wealth of the country. Lastly I looked at how much of the variance in HLY across nations could be explained by these societal characteristics together. An overview is presented in Table III. I will expand on the main findings below.

Wealth

Until recently, quality-of-life in nations was equated with material prosperity and measured by GDP per capita. It is now acknowledged that money is not everything, but wealth is still prominent in quality-of-life indexes such as the Human Development Index (UNPD, 2001) and Estes’ (1984) Index of Social Progress. How does this hallmark of ‘assumed’ quality-of-life relate to our measure of ‘apparent’ quality-of-life?

TABLE III
Societal qualities and happy-life-years in 67 nations in the 1990s

Condition in nation	Correlation with HLY		
	Zero-order	Wealth Controlled	N
<i>Wealth</i>			
– Purchasing power per head*	+ 0.73	–	66
<i>Freedom</i>			
– Economic*	+ 0.71	+ 0.38	64
– Political*	+ 0.53	+ 0.13	63
– Personal	+ 0.61	+ 0.31	45
<i>Equality</i>			
– Disparity in incomes*	–0.10	+ 0.37	62
– Discrimination of women	–0.46	–0.12	51
– Disparity in happiness	–0.64	–0.37	54
<i>Brotherhood</i>			
– Tolerance	+ 0.72	+ 0.43	55
– Trust in compatriots	+ 0.20	+ 0.20	37
– Voluntary work	+ 0.40	+ 0.31	53
– Social security	+ 0.34	–0.27	34
<i>Justice</i>			
– Rule of law*	+ 0.65	+ 0.20	64
– Respect of civil rights*	+ 0.60	+ 0.20	60
– Corruption	–0.73	–0.32	40
Explained variance by variables marked with*		66%	60

Indicators described in Appendix B.

The relationship between income per head and HLY in nations is presented in Figure 2. This scattergram shows a strong correspondence, the correlation coefficient is +0.73. This result fits the common assumption that wealth is essential to quality-of-life. Yet with a closer look one can see that there is a limit to the benefits of material wealth. In the scattergram one can recognize a curve of diminishing returns. The correlation is mainly in the left segment of the scattergram among nations with an income per capita below \$ 15,000. There is little correlation among the richer nations ($r = +0.18$).

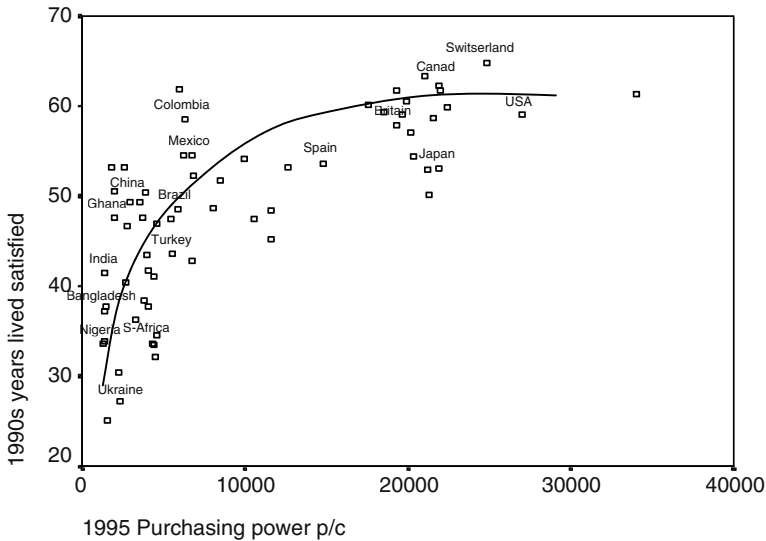


Figure 2. Wealth and happy-life-years in 66 nations in the 1990s.

Freedom

Opinion about the blessings of freedom is mixed. Individualistic social philosophy assumes that people themselves know best what they need, and hence that they will thrive better if they can follow their own preferences. Conservatives doubt that people really know what is best for them and rather stress the wisdom of tradition and experts. Some schools of thought see different effects of different variants of freedom. Currently the New Right is quite positive about economic freedom, but at the same time it is critical about freedom in the private sphere of life. Free sex and the legalization of soft drugs are seen to as a threat to the quality-of-life. Likewise a common view in South-East Asia is that economic freedom will improve the human lot but that political freedom will not.

The relationship between political freedom and HLY is presented in Figure 3. Again we see a positive correlation, but the shape of the relationship is linear in this case, which suggests that freedom is not yet at its limit regarding its ability to confer quality-of-life. Similar patterns appear in the relationships of economic freedom and personal freedom to HLY.

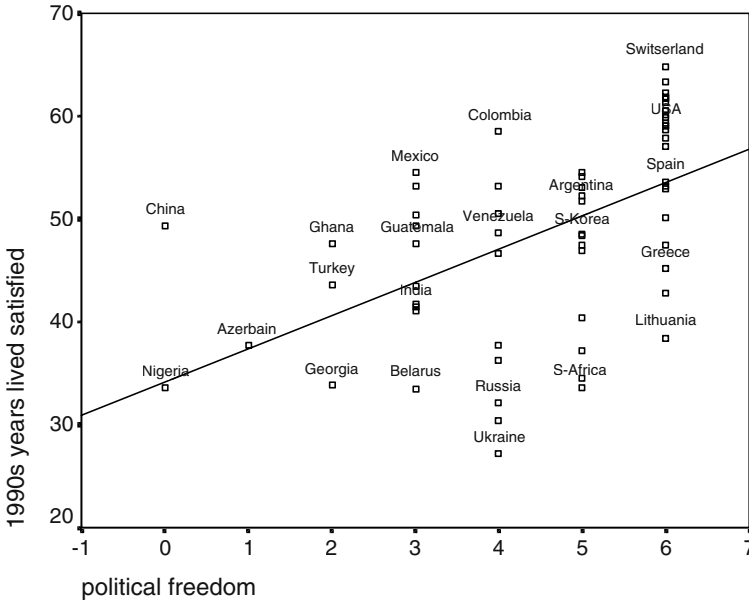


Figure 3. Political freedom and happy-life-years in 63 nations in the 1990s.

These findings support the liberal position. I have discussed this matter in more detail elsewhere (Veenhoven, 1999, 2000b).

Free nations are typically also rich nations and hence the partial correlations in Table III are considerably lower than the zero-order correlations. This could mean that the zero-order correlations are largely spurious and that wealth is the main determinant of HLY. Yet is it also possible that freedom and wealth affect HLY equally much or that freedom affects HLY through its effects on the growth of wealth. Due to a lack of good time series data we cannot disentangle these effects as yet. For the time being, the partial correlations mark a minimum.

Equality

There is also a difference of opinion on the significance of social equality for the quality-of-life in nations. Egalitarians claim that social inequality is antithetical to quality-of-life, because it is morally unjust and because of its detrimental effects on self-respect and social bonds. Conservatives stress the positive functions of inequality and expect that enforced equality will go

at the cost of quality-of-life. The discussion focuses very much on income-equality.

The evidence is mixed in this case, since not all kinds of equality relate in the same way to HLY. Surprisingly there is no statistical association with income inequality. The scattergram on Figure 4 shows that people live equally long and happy in nations with small income disparities, such as Japan, as in nations with great income differences, such as Mexico. Statistical control for wealth of the nations even suggests a positive effect of income inequality.

The correlation with inequality between males and females is more in line with egalitarian supposition; HLY being higher in nations where women are least discriminated. Yet the partial correlation is quite small, which could mean that gender equality works out to be less beneficial after all.

HLY relates most strongly with difference in happiness as measured by its standard deviation and this correlation remains robust after control for wealth of the nation. Elsewhere I have argued that social inequality in nations cannot be measured

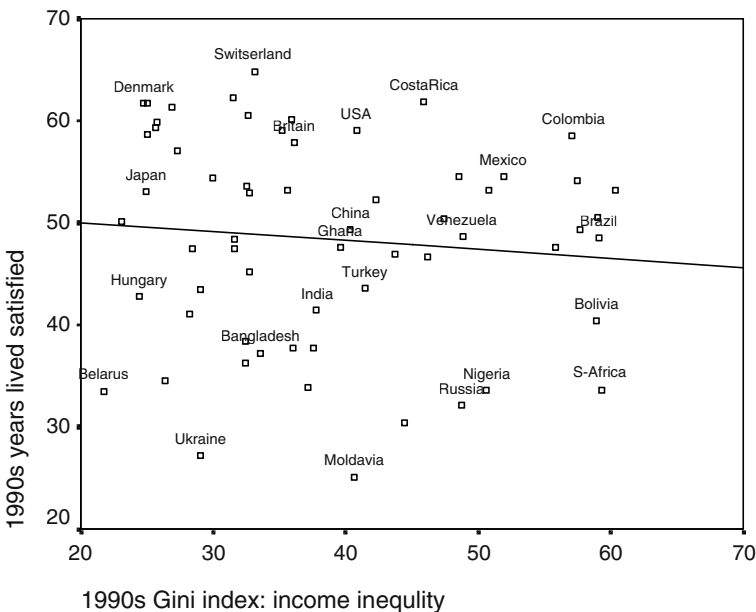


Figure 4. Income inequality and happy-life-years in 62 nations in the 1990s.

inclusively by adding up differences in access to different matters and that the disparities in access to relevant resources (inputs) reflect best in the dispersion of happiness (output) (See Veenhoven, 2002). If I am right in this, these correlations mean that inequality still matters, though apparently not the specific inequalities that figure most prominently on the political agenda these days.

Solidarity

Next to freedom and equality, 'social solidarity' figured in the slogan of the French revolution (*Liberté, égalité, fraternité*), and social solidarity is still seen as a prerequisite for a good life. In this analysis I considered two aspects of social solidarity in nations, one interpersonal respect and cooperation and two 'organized solidarity' in collective systems of social insurance.

The indicators of interpersonal solidarity relate positively to HLY. The strongest correlation is with 'tolerance' as measured by acceptance of minority group members as a neighbor. There is also a positive correlation with self-reported trust in compatriots and with activity in voluntary organizations. All these correlations are largely independent of the wealth of the nation.

The case of 'organized solidarity' is different however. The zero-order correlation between social security expenditures and HLY is positive, but control for the wealth of a nation reveals a negative relationship. I have investigated this matter in more detail elsewhere and found indeed that people are not happier and healthier in nations with lavish social security systems than in equally rich nations where the providential state is less open-handed (Veenhoven, 2000c). Apparently we can live equally well in a residual welfare state. This finding illustrates that 'presumed' qualities of life do not always match 'apparent' quality-of-life.

Justice

Righteousness is also commonly mentioned as prerequisite for a good life. In this analysis I consider three indicators of justice in nations: rule of law, respect of civil liberties and prevalence of corruption. The relation between corruption and HLY is

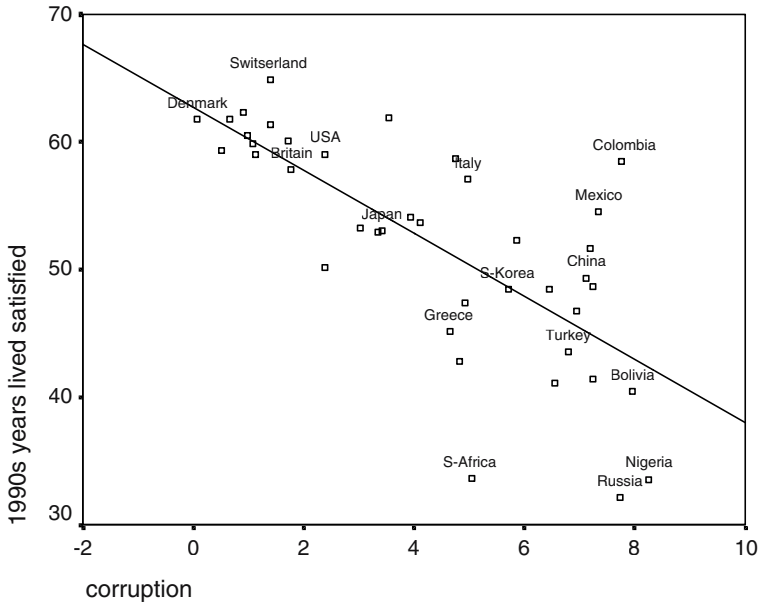


Figure 5. Corruption and happy-life-years in 40 nations in the 1990s.

depicted in Figure 5. The scattergram reveals a strong negative relationship with this aspect of *injustice*. The other indicators of justice in nations are also strongly related to HLY. See Table III.

The partial correlations are also positive, but much smaller. As in the case of freedom this does not necessarily mean that the independent effect of justice is small, since the common variance of justice and wealth can be due to an effect of the former on the latter.

Explained Variance

As a last step I considered how well these societal inputs predict the output of years lived happily. I limited that analysis to the variables for which we have at least 60 cases. This left me with wealth, economic freedom, political freedom, income inequality, rule of law and civil rights. Together these six societal qualities explain 66% of the variance in HLY in nations. Consideration of more variables in smaller nation sets yields R^2 values of 0.85 and more. Dispersion of happiness in particular adds 13% explained variance.

DISCUSSION

This correlation between HLY and common 'input' indicators shows that HLY measures something substantive and fits common sense notions of quality-of-life. Yet it also raises the question about its surplus value. If the two approaches to the measurement of quality-of-life in nations yield quite similar results, why then use this new output measure?

One reason is that not everything deemed required for a good life is really necessary. We saw this in the cases of income equality and social security. Second some of the things that are required today may lose relevance tomorrow. This is illustrated by the diminishing utility of wealth. Together this means that we better not focus on separate inputs, but rather measure final output.

Next there are practical reasons, HLY is more easily measured than current indexes of presumed quality-of-life and the concept of HLY is also easier to understand.

A look at Appendix A shows that happiness and longevity tend to go together, in particular in the western countries where life is both long and happy. This raises the question whether we really need a combination of happiness and longevity. Why not simply suffice with the latter?

The answer is that happiness and longevity do not always parallel. People live rather short but fairly happy in 3rd world countries like Bangladesh, India and Nigeria, while they live pretty long but unhappy in former 2nd world nations such as Russia and Azerbaijan. Consequently the correlation is not high, $r = +0.38$. Hence the sum tells more than its constituents.

Still one can object that the same HLY score may denote different combinations of happiness and longevity. As noted earlier, a same medium score on HLY may reflect three combinations: (1) moderate longevity and medium happiness, (2) a long but unhappy life, and (3) a short but very happy life. These are indeed different situations, but still we may want to reduce this diversity to one dimension. In that case, HLY provides a way to do so. The combination makes sense, since both average

happiness and longevity reflect how well people thrive in a country. In fact the combination of these two output measures makes more sense than the adding up of input indicators, such as income per head and education. I have elaborated that point elsewhere (Veenhoven, 2000a, section 4).

CONCLUSION

Quality-of-life in nations can be measured by the degree to which citizens live long and happily. The number of HLY differentiates well across nations and over time. This measure of 'apparent' quality-of-life is a good alternative to current indexes of 'assumed' quality-of-life such as the Human Development Index.

Application of this measure in the present day world shows that the quality-of-life is highest in nations characterised by economic affluence, freedom and justice. Income equality and generous social security do not appear to be required for a long and happy life.

APPENDIX A
Apparent quality-of-life in 67 nations in the 1990s

Nation	Enjoyment of life ¹ (scale 0–1)	Length of life ² (in years)	Happy Life Years ³
Argentina	6.8	72.6	49.1
Armenia	3.7	70.9	26.2
Australia	7.3	78.2	56.9
Austria	6.1	76.7	47.0
Azerbaijan	4.9	71.1	34.7
Bangladesh	6.0	56.9	34.2
Belarus	4.4	69.3	30.3
Belgium	7.3	76.9	56.4
Bolivia	6.2	60.5	37.5
Brazil	7.0	66.6	46.3
Britain	7.2	76.8	55.4
Bulgaria	4.3	71.2	30.5
Canada	7.7	79.1	60.6
Chile	6.9	75.1	52.0
China	6.7 ⁴	69.2	46.7

APPENDIX A

Continued

Nation	Enjoyment of life ¹ (scale 0–1)	Length of life ² (in years)	Happy Life Years ³
Colombia	8.1 ⁴	70.3	57.1
Costa Rica	7.9 ⁴	76.6	60.8
Croatia	5.5	71.6	39.6
Czecho-Slovakia	5.9	71.7	42.3
Denmark	8.0	75.3	59.9
Dominican Rep.	6.8	70.3	47.9
Ecuador	6.4	69.5	44.5
El Salvador	7.4	69.4	51.7
Estonia	5.0	69.2	34.6
Finland	7.5	76.4	57.1
France	6.4	78.7	50.5
Georgia	4.1	73.2	29.7
Germany	6.7	76.4	51.4
Ghana	7.7 ⁴	57.0	43.9
Greece	5.3	77.9	41.4
Guatemala	7.2	66.1	47.3
Honduras	7.0	68.8	48.0
Hungary	5.6	68.9	38.6
Iceland	7.8	79.2	61.8
India	6.2	61.6	38.5
Ireland	7.6	76.4	58.4
Italy	7.0	78.0	54.6
Japan	6.3	79.9	50.0
Latvia	4.8	68.0	32.5
Lithuania	5.0	70.2	35.1
Luxembourg	7.8	76.1	59.2
Macedonia	5.2	71.9	37.6
Mexico	7.3	72.1	52.5
Moldavia	3.0	67.8	20.5
Netherlands	7.5	77.5	58.3
Nicaragua	7.6	67.5	51.2
Nigeria	6.3 ⁴	51.4	32.6
Norway	7.4	77.6	57.5
Panama	7.1	73.4	52.3
Paraguay	6.8	69.1	46.7
Peru	6.0	67.7	40.4
Philippines	6.5	67.4	43.7
Poland	6.2	71.1	43.8
Portugal	6.7	74.8	50.5

APPENDIX A

Continued

Nation	Enjoyment of life ¹ (scale 0–1)	Length of life ² (in years)	Happy Life Years ³
Romania	5.4	69.6	37.7
Russia	4.2	65.5	27.8
South-Africa	5.7	64.1	36.7
South-Korea	6.3	71.7	45.3
Slovenia	6.0	73.2	43.8
Spain	6.5	77.7	50.8
Sweden	7.6	78.4	59.9
Switzerland	8.1	78.2	63.0
Turkey	5.9	68.5	40.4
Ukraine	3.3	68.5	22.5
Uruguay	6.7	72.7	49.0
USA	7.4	76.4	56.9
Venezuela	6.4	72.3	46.0

Technical details

1. Average enjoyment of life assessed using of surveys in general public samples. This list is based on responses to questions on life-satisfaction.
 - Most scores are based on responses to the following question: “All things considered, how satisfied or dissatisfied are you with your life-as-a-whole now? 1 dissatisfied . . . 10 satisfied”.
 - This question is categorized as query type 122C, sub-type O-SLW/c/sq/n/10/aa. This classification is explained in section 4/3 of the introductory text.
 - Scores on this 1–10 scale were transformed linearly to range 0–10. This transformation is explained in the introductory text, chapter 7.3.
 - Scores of most Latin American nations are based on responses to a somewhat different question. “In general, would you say that you are satisfied with your life? Would you say that you are...very satisfied (4), quite satisfied (3), satisfied (2) or not very satisfied (1)?”
 - This question is categorized as query type 121B, subtype O-Slu/c/sq/v/4/b. This classification is explained in section 4/3 of the introductory text.
 - Scores on this 1–4 scale were transformed to range 0–10 by means of expert weighing of response options. This ‘Thurstone procedure’ is explained in chapter 4/3 of the introductory text.
 - Since the above 1–10 questions have also been used in five of these Latin American nations, I could check whether this transforma-

tion yields comparable results. The transformed scores appeared to be slightly higher and were therefore corrected by subtracting 0.5 point.

- This combination of scores on two slightly different questions results in a list of 67 cases. The number of cases is smaller if one restricts to responses on identical questions. Restriction to a common question on 'happiness' (query type 111B) yields 60 cases and limitation to the above 1–10 life-satisfaction item (query type 1222C) 54 cases.
2. Life expectancy is estimated on the basis of civil registrations of birth and death. Source: Human Development Report 2001, Table I.
 3. Life-satisfaction scores may be inflated in some countries, due to under sampling of rural population or inexperience with anonymous interviewing. Dubious cases are China, Colombia, Ghana and Nigeria are dubious cases.

APPENDIX B

Characteristics of nations, used in correlational analysis

<i>Wealth</i>	
– Income	Purchasing power per head in 1995 Human development report 1999, Table I (UNDP)
<i>Freedom</i>	
– Economic	Index of economic freedom 1999 Heritage foundation (1999)
– Political	Index of suppression of political rights 1994–1995 (reversed) Karantnycky et al. (1995)
– Personal	Index of freedom in personal life. Involves absence of restrictions to traveling, religion, marriage, sex and suicide. Both legal restrictions and public acceptance Veenhoven (2000b)
<i>Equality</i>	
– Income equality	Gini index Human development report 2001 Table 12 (UNDP)
– Gender equality	SIGE index of gender inequality Dijkstra (2000)
– Equality in happiness	Standard deviation of life satisfac- tion Veenhoven (2002)

APPENDIX B

Continued

<i>Solidarity</i>	
– Tolerance	Responses to survey questions about the kind of people one would like to have as a neighbor World value surveys 1990–1995, items 51–60
– Trust in compatriots	Responses to survey question World value surveys 1990–1995, item 41
– Voluntary work	Responses to survey questions World value surveys 1990–1995, items 28–35
– Social security	Expenditures in percent of GDP ILO (1995)
<i>Justice</i>	
– Rule of law	Index of institutional quality 1997–1998 IMF, World economic outlook October 2000
– Violation of civil rights	Index of suppression of civil rights 1994–1995 Karantnycky et al. (1995)
– Corruption	Rating by foreign businessmen and journalists Transparency international

NOTES

¹ Paper presented at the International conference ‘Quality of Life in a Global World’ Chinese University of Hong Kong, November 14–15, 2003. This paper builds on an earlier paper entitled ‘Happy Life Expectancy’ (Veenhoven, 1996). The approach is summarized and new data are presented, now on 20 more nations and in time-trends.

² This distinction between ‘input’ and ‘output’ has also been used to denote different levels of societal provisions, for instance government expenditures on housing as input and the number of rooms per capita as output (e.g., Boelhouwer and Stoop, 1999, p. 53).

³ For a discussion of the adaptive functions of affect see Morris (1992). Affect has only developed in species that can choose how and where to live, such faculties would be of little use for plants.

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GLOBAL QUALITY OF LIFE (QOL), HEALTH AND
ABILITY ARE PRIMARILY DETERMINED BY OUR
CONSCIOUSNESS. RESEARCH FINDINGS FROM
DENMARK 1991–2004

(Accepted 29 April 2004)

ABSTRACT. *Objective:* To explain the global quality of life (QOL) from 2000 indicators representing all aspects of life. *Design and setting:* Two cross sectional population studies, one prospective cohort study and one retrospective cohort study. *Participants:* (1) Representative sample of 2500 Danes (18–88 years), (2) 7222 members of the Copenhagen Perinatal Birth Cohort 1959–1961 (31–33 years), (3) 9.006 mothers and their 8820 children born in Copenhagen 1959–1961, (4) 746 Danes (55–66 years). *Main outcome measures:* Global QOL measured by SEQOL (self evaluation of QOL) containing eight global QOL measures: Well-being, life-satisfaction, happiness, fulfilment of needs, experience of temporal and spatial domains, expression of life's potentials and objective factors. *Results:* 2000 associations; strongest between QOL and health, ability, the personal philosophy of life, the relationships to oneself, the partner and friends; weakest between QOL and 1000 early life factors, 1000 life events and 100 objective factors like income. *Conclusions:* Quality of life is associated with personal health and attitude towards life, rather than objective factors, life style, or life events. We conclude that QOL can be developed independently and thus be used as medicine.

INTRODUCTION

The concept of Quality of life (QOL) has become an important topic both in the health field, social welfare and the political debate. Enhancing the QOL is more and more considered to be an objective in treatment and prevention of illness together with the provision of psychosocial support. For the last three decades QOL has been a major issue of debate in Denmark, and in recent years the concept of QOL or living “a good life” has been the subject of a

number of philosophical and psychological studies in Denmark (Aggernæs, 1989; Henriksen, 1992; Holm et al., 1994; Kemp, 1991; Merrick and Ventegodt, 2003; Sandøe, 1992; Ventegodt, 2003; Ventegodt & Merrick, 2003f; Ventegodt et al., 2003m–w). It is becoming increasingly apparent that illness is closely related to the individual perception of a good life, and therefore the exploration of indicators related to QOL appears to be of broad importance for the prevention and treatment of diseases.

Our search for describing QOL was built on the foundation that our QOL must be composed of items that are known to us. Therefore a comparative valuation of these items must be our chief instrument for deciding the degree of QOL of the person studied. The best QOL will be the state that contains the greatest number of items having a positive value according to our own estimate. In order to arrive at correct decisions as to which items should be included in the questionnaire, it was necessary to consider what we would judge to be good and consider what comparative values to attach each item. From this approach we created the self evaluation of QOL (SEQOL) questionnaire.

Identifying, which factors constitute a good life may reveal an understanding about what areas in life should be encouraged, in order to enhance the global QOL. In this paper we present results from studies initiated in 1989 to examine QOL in relation to disease. The purpose of this presentation is to assemble the results from the study carried out in the years between 1993 and 1997, examining a total of 11 000 Danes, to show the association between QOL and a wide series of social indicators, in the ambition to make an almost complete map of QOL and the factors determining QOL and health (Ventegodt, 1995a–b; Ventegodt, 1996a; Ventegodt, 2000). We include three major lines of indicators: indicators of the present life, indicators of the personal history (life events), and indicators from the beginning of life, including a series of social and biological factors. Our belief was that a part of the variation of QOL in the adult population could be explained by biological and social heritage, another part could be explained by life event – happy and unhappy – and a third part could be explained by the conscious choices in life, recently, here and now.

METHODS

To explore the association between QOL and the various different indicators, it was necessary to create a questionnaire that could describe the QOL of the persons studied (Ventegodt and Merrick, 2003e; Ventegodt et al., 2003c–i).

After preliminary background literature research that examined various methods of measuring the QOL, a study group on “quality-of-life research” was established in Copenhagen in order to investigate the field and identify a number of theories on the subject (Ventegodt, 1991; Ventegodt et al., 1992). A subgroup was formed to construct a questionnaire with the purpose of investigating the QOL empirically within selected cohorts. During 1991–1993, this questionnaire was revised and improved in 20 pilot studies through qualitative interviews. In addition, a number of pilot surveys on different groups refined the questionnaire further. We found it ready for use in its present form in 1993 (Ventegodt et al., 1994; Ventegodt et al., 2003f).

All four studies are based on the same SEQOL questionnaire (Ventegodt et al., 2003a,b), which measures the global QOL. The questionnaire consists of 317 items and based on an “integrative” theory of the QOL, a theoretical framework from a Danish QOL survey involving 7222 persons 31–33 year olds (Figure 1), measuring it across eight different global QOL dimensions (Ventegodt et al., 2003j). The integrative QOL theory was created to organize a number of theories on the QOL into a spectrum that spans the extremes of subjective and objective QOL. SEQOL is a self-administered questionnaires with items rated on five-point Likert scales. For validation SEQOL was send to 2460 persons 18–88 year olds randomly selected from the Danish Central Person Register(CPR-Register) together with the Nottingham Health profile (NHP), Sickness Impact Factor (SIP), and the test-retest reliability correlation was > 0.8 , Cronbach’s alpha was 0.75, correlation (r) to NHP was 0.49 to SIP 0.27 ($p < 0.05$). Adjustment for health status made the correlation to SIP stronger among the sick ($r = 0.41$). For SEQOL 111 respondents were needed to detect 3% difference in QOL. SEQOL is thus valid as it shows a

THE QUALITY OF LIFE

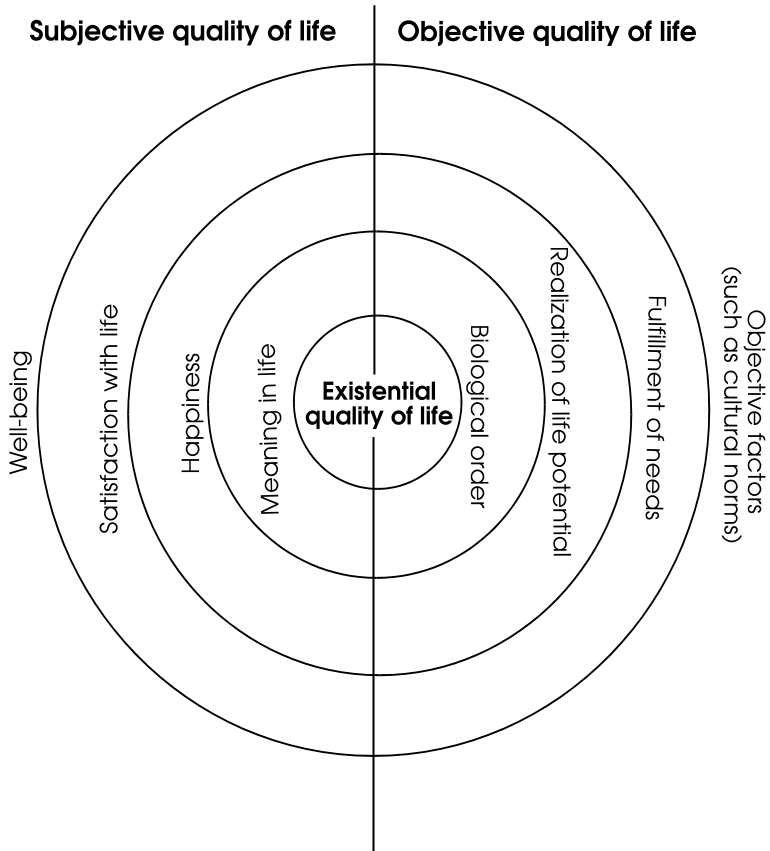


Figure 1. The integrative (IQOL) theory of the QOL. The individual can best be compared to a green apple with red patches (a subjective and an objective QOL, respectively at the surface of an individual's existence) with a hidden nucleus (humanity's inner depth). When this picture is combined with the picture of humanity as an onion with a number of layers between the surface and the nucleus, the taxonomy underlying the QOL analysis is achieved. Between life's surface and its inexpressible depth lies well-being, satisfaction, harmony and meaning and deep concord.

high level of reliability, sensitivity and consistency. For the calculation of the global QOL, 113 of the questions are used. The rest is control questions and questions giving more information about health status, sexuality, philosophy of

life, life style, self-perception, and social circumstances. The principle of SEQOL is that of a hierarchy of factors, adding up to an abstract total QOL.

These measures are showed below (sample questions from the questionnaire included):

Subjective Measures

1. Immediate, self-experienced well-being (“How are you feeling?”).
2. Life satisfaction (“How satisfying is your life?”).
3. Happiness (“How happy are you at present?”).

Existential Measures

4. Fulfilment of needs (e.g., “How well are your social needs fulfilled?”).
5. Experience of life’s temporal domains (e.g., “How do you feel when you are at home?”).
6. Experience of life’s spatial domains (“How satisfied are you with [each of five domains: self, partner, family, friends, community]”?).
7. Expression of life’s potentials (to which extent are they fulfilled).

Objective Measure

8. Objective factors (income, status and work etc.).

Replies to each of the questions that constitute these measures are weighted and scored to yield computable numbers between a minimum of 0 and a maximum of 100 (for technical details, see Ventegodt and Merrick, 2003e; Ventegodt et al., 2003c–i). These numbers are then taken as representing the QOL of the respondent, expressed in terms of the eight different ways the QOL has been measured by the questionnaire. Suitably weighted and scored, replies to the first part of the questionnaire constitute variables, the co-variation of which the QOL can be calculated.

Measuring QOL has been the subject for many disagreements through time. In our research, the global QOL – in the

most broad and all-including sense – is the primary outcome measure (dependent variable); the integrative QOL theory made us include 113 items in SEQOL questionnaire for the calculation of the global QOL (Ventegodt, 1996b).

In this study we had to deal with an essential problem: When the statistical connection between 113 life factors and the global QOL was measured, we often had a contribution to the statistical co-variation from the construction of the global QOL measure. Lets give an example: The objective QOL measure (no. 8) includes a question on having a partner or not:

Do you have a partner?

- 1 Yes.
- 2 In doubt.
- 3 No.

If a person says yes, and we want to analyse the statistical connection with marital status and global QOL, we will get a contribution from the way the objective QOL is defined and measured because having a partner gives a likelihood for being married.

This problem turned out to be of little significance, as even the most strongly “constructed” connections did not count for more than 1/15th of the total connection. Still this gives an error of up to 7% in co-variation, for which we have compensated in a further analysis.

A number (a–e) is added to the quantitative result in Tables I and II, and a part of Table IV, to add another dimension of reliability to the results, because we sometimes for technical reason suspected the co-variation would be different in another survey with more participants or another way of presenting the data. The mark a–e is called a “qualitative evaluation” of the size of the co-variation; it is our subjective estimate of the true size of the statistical co-variation, taking the above mentioned error into account and also the variation of numbers of respondents in each answering category; if we have too few respondents in some of the response categories we don’t get the whole range of the curve (x , QOL) with our method of linear

TABLE I
Present life factors I

Quality of life and...	Mark*	QOL difference in % **
Self-assessed quality of life	a	56.9
Feeling good at home	b	55.9
Fulfilment of need to be useful	a	50.3
Fulfilment of basic biological needs	a	48.4
Feeling good during leisure	a	47.4
Personal resources	a	42.8
Fulfilment of needs for an exciting and varied life	a	42.2
View of life	a	41.5
Fulfilment of social needs	a	39.4
Relations with oneself	a	39.3
Self-perceived mental health	a	38.4
Satisfaction with one's relationship situation	a	37.6
Type of health problems	b	36.8
Fulfilment of need for self-realization	a	36.3
Weight and acceptance of own body (men)	b	35.8
Relations with friends	b	33.3
Unemployed persons' assessment of their own means	b	33.3
Self-perceived physical health	a	33.2
Self-image	b	33.1
Number of values	b	32.9
Important, daily personal contacts (men)	a	32.6
Relations with one's partner	a	32.2
Important, daily personal contacts (women)	b	31.6
Satisfaction with one's sex life (men)	b	30.9
Assessment of one's own means	b	30.8
Having a very close friend (men)	b	30.6
Unemployment with/without meaning of life	d	30.2
Number of severe health problems	a	29.8
Unemployed persons' assessment of their own means	a	29.3
Unemployment or meaningful employment	b	29.3
Mental disorders	b	27.6
The physical work environment	b	27.6
Single breadwinner	b	27.3
Satisfaction with one's own health	b	27.3
Unemployment at four educational levels	b	27.1
Relations with one's children	b	27.0

TABLE I
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Satisfaction with one's own means	b	26.7
Meaningful work	b	26.3
Mean occupation	c	26.0
Employed men with/without children/partner	b	25.0
Having a partner	b	23.6
Type of education	e	23.2
Disease diagnoses (main categories)	c	22.8
Meaning in life	b	22.7
Numbers of health problems	b	22.5
Satisfaction with one's sex life (women)	b	22.1
Under- and overweight (Body Mass Index) (women)	b	22.1
Sexual problems	c	22.1
Loneliness	b	21.7
Wide-ranging values	b	21.7
Sick days last year	b	21.6
Marital status	b	21.5
Unemployment among women, by age	c	21.4
Co-habitants	c	21.1
Relations with society	b	20.9
Family social group	d	20.9
Contemplating suicide	b	20.6
The physical work environment	c	19.3
Satisfaction with work	b	19.1
Psychotropic drugs	c	19.0
Satisfaction with one's situation regarding children	c	18.9
Partner's annual income	d	18.8
Under- and overweight (Body Mass Index) (women)	c	18.7
The social work environment	c	18.2
Social group	e	18.0
Relations with nature	b	17.9
Acceptance of one's own body	c	17.8
"Masculine" and "feminine" values (women)	c	17.7
Current diseases and conditions (III)	c	17.6
Satisfaction with society	c	17.6
Children living at home	c	17.6
Having a sex life	c	17.1

TABLE I
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Important, daily personal contacts	c	17.0
Unemployment among men, by age	d	16.4
Housing	c	16.1
Relations with parents	c	15.9
Management position	d	15.8
Under- and overweight (Body Mass Index) (men)	c	15.7
Feeling part of a larger whole	c	15.4
Difference in educational levels (self/partner)	d	15.3
Vocational education	e	15.2
Abortions	c	15.1
Annual income	d	15.0
Number of biological children (men)	d	14.9
“Masculine” and “feminine” values (men)	c	14.7
Childlessness (women)	d	14.4
Durable consumer goods	d	14.3
Having children	d	14.2
Feeling self-confident	c	13.4
Meaningful work	c	13.4
Unemployment or meaningful employment	c	13.4
Partner’s main occupation	d	13.4
Denial of needs	c	13.0
Childlessness (men)	d	12.8
Sexual preferences	c	12.8
Medical treatment	c	12.6
Relations with one’s siblings	c	12.4
Height (men)	c	12.3
Seeing problems as challenge	c	11.6
Current employment status	d	11.3
Satisfaction with the local natural environment	c	11.1
Number of subordinates	d	10.9
Having sexual problems	c	10.8
Age	c	10.5
Having a very close friend	c	9.8
Satisfaction with parents	d	9.6
Partner’s job type	d	9.5
Feeling sexually attractive	c	9.2
Women’s siblings	d	9.1
Attending school or university (level I–IV)	e	8.9

TABLE I
(Continued)

Quality of life and...		Mark* QOL difference in % **
Number of biological children (women)	d	8.9
Alcohol consumption (entire week)	e	8.8
Diet	d	8.7
Alcohol consumption on weekdays	e	7.5
Half sisters and brothers	e	7.4
Materialistic/spiritual	d	7.1
Length of the relationship	d	6.8
Intellectual employment (intermediate level)	d	6.7
Types of completed vocational education	e	6.7
Job type	d	6.6
Believing that other people speak well of oneself	d	6.4
Operation under general anaesthesia	e	6.2
Men's siblings	d	6.2
Resident (country/town)	e	6.2
Alcohol consumption on weekends	e	6.1
Military employment	d	6.1
Being a twin/triplet	e	5.9
Ethical sensitivity	e	5.9
Completed vocational education (level I-IV)	e	5.4
Values	e	5.1
Height (women)	d	4.3
Tobacco use	e	3.9
Relations with one's previous partner	e	3.4
Exercise	e	2.3
Intellectual employment (expert level)	e	2.3
Smoking	e	2.1
Miscarriages	e	1.2 (NS)
Gender	e	0.0 (NS)

The connection between global QOL and 200 different life factors; only statistically ($p < 0.05$; NS: Not significant) and clinically significant factors listed. Difference in global QOL is measured according to the Integrated QOL theory (Ventegodt et al., 2003j), and is measured with the validated SEQOL questionnaire (Ventegodt et al., 2003f).

*"Qualitative evaluation" of the degree of association between the factor and the QOL (a-e, see text).

**Difference in percentage between the worst and the best off (single events), or calculated with the method of weight modified linear regression (impact of all events) (Ventegodt and Merrick, 2003e).

TABLE II
Present life factors II

Quality of Life and . . .	Mark*	QOL difference in % **
Feeling good during leisure	a	64.7
Relations with oneself (employed/unemployed)	a	61.9
Assessment of one's own quality of life	a	59.2
View of life	a	59.1
Feeling good at home	a	58.3
Relations with oneself	a	56.8
Fulfilment of social needs	a	52.3
Fulfilment of basic biological needs	a	52.3
Self-perceived mental health	a	51.0
Mental disorders	a	44.0
Unemployed persons' assessment of their own means	b	42.8
Relations with friends	a	42.7
Fulfilment of needs for an exciting and varied life	a	42.5
Fulfilment of need to be useful	a	42.2
The quality of one's social relations	a	42.2
Fulfilment of need for self-realization	a	42.1
Satisfaction with relations with acquaintances	b	42.0
Self-image	a	41.6
Satisfaction with one's relationship situation	a	38.0
Assessment of one's own means	b	37.7
Satisfaction with relations with friends	b	37.6
Satisfaction with one's sex life (men)	a	35.5
Number of severe health problems	a	35.3
Unemployment with/without meaning of life	b	35.2
Current diseases and conditions	c	33.9
Satisfaction with one's own means	b	33.4
Type of health problems	b	33.3
Numbers of health problems	b	32.7
Relations with one's partner	a	31.7
Mean occupation	c	31.5
Feeling good at work	b	31.2
Satisfaction with one's sex life (women)	b	30.3
Weight and acceptance of own body (men)	b	30.0
Number of values	b	29.7
Self-perceived physical health	a	29.4
Having sexual problems (men)	b	29.3
Relations with society	b	29.2

TABLE II
(Continued)

Quality of life and...	Mark* QOL difference in % **	
Satisfaction with one's own health	b	29.0
Meaning in life	a	28.6
Single breadwinner	b	28.1
Sexual problems (men)	b	27.2
Housing	b	26.7
Relations with one's children	b	26.0
Satisfaction with society	b	25.8
"Masculine" and "feminine" values (women)	b	25.7
Loneliness	b	25.5
Contemplating suicide	b	25.0
Having a partner	b	25.0
Social group	e	24.3
Sexual problems (women)	b	24.3
Having a sex life	c	23.7
Marital status	b	23.6
Alcohol consumption on weekends	e	23.5
Family social group	d	23.2
Relations with fellow workers	b	23.0
Employed women with/without children/partner	b	22.6
Co-habitants	c	22.6
Wide-ranging values	b	22.5
Alcohol consumption on weekdays	e	22.3
Durable consumer goods	c	22.3
Current employment status	b	22.1
Under- and overweight (Body mass Index) (men)	d	21.9
Under- and overweight (Body mass Index) (women)	b	21.9
Satisfaction with work	b	21.5
Type of education	e	21.2
Disease diagnoses (main categories)	c	21.0
The social work environment	c	21.0
Sick days last year	b	20.6
Partner's main occupation	c	20.2
Annual income	c	19.8
Childlessness (men)	c	18.8
Number of biological children (men)	d	18.8
Personal resources	a	18.7
Sexual preferences (men)	c	18.5
Acceptance of one's own body	b	18.4
Important, daily personal contacts (women)	b	18.3

TABLE II
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Important, daily personal contacts (men)	b	18.0
Feeling self-confident	b	17.9
Relations with nature	b	17.8
Sexual preferences (women)	c	17.1
“Masculine” and “feminine” values (men)	c	16.9
Psychotropic drugs, use of	c	16.6
The physical work environment	c	16.5
Feeling part of a larger whole	c	16.4
Satisfaction with one’s situation regarding children	c	16.3
Alcohol consumption (entire week)	e	16.1
Unemployment at four educational levels	e	16.0
Medical treatment	c	15.1
Relations with parents	c	14.8
Quality of life	c	14.5
Weight (men)	d	14.4
Partner’s annual income	c	14.4
Satisfaction with the local natural environment	c	14.2
Satisfaction with parents	c	13.7
Having sexual problems (women)	c	13.7
Having a very close friend (women)	c	13.6
Number of subordinates (men)	c	13.4
Seeing problems as challenge	b	13.1
Relations with one’s siblings	c	11.4
Having a very close friend (men)	c	11.3
Vocational education	e	11.2
Meaningful work	b	11.0
Childlessness (women)	d	11.0
Unemployment or meaningful employment	c	10.9
Believing that other people speak well of oneself	d	10.8
Number of biological children (women)	d	10.7
Tobacco used	d	10.6
Partner’s job type	d	10.5
Having children	d	10.5
Ethical sensitivity	d	10.4
Being a twin/triplet	e	10.2
Feeling sexually attractive	c	10.0
Job type	d	9.8
Children living at home	d	9.8
Under- and overweight (Body Mass Index) (women)	c	9.7

TABLE II
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Employment as process or machine operator	e	9.5
Height (women)	e	9.4
Caring professions	d	8.6
Treatment	d	8.5
Diet	d	8.1
Denial of needs	d	7.6
Length of the relationship	d	7.5
Intellectual employment (expert level)	e	7.4
Attending school or university (level I–IV)	e	7.1
Difference in educational levels (self/partner)	d	7.1
Abortions	d	6.8
Medical treatment	e	6.6
Miscarriages	e	6.0
Number of subordinates (women)	e	6.0
Men's siblings	d	5.3
Materialistic/spiritual	d	5.3
Smoking	e	5.2
Types of completed vocational education	e	5.0
Height (men)	e	5.0
Relations with one's previous partner	e	4.6
Operation under general anaesthesia	e	4.5
Resident (country/town)	d	4.4
Half sisters and brothers	e	4.2
Type of parents	e	4.1
Exercise	e	4.1
Miscellaneous employment	e	4.1
Completed vocational education (level I–IV)	e	3.9
Management position	d	2.6
Gender	e	2.1

The connection between global QOL and 200 different life factors; only statistically ($p < 0.05$; NS: Not significant) and clinically significant factors listed. Difference in global QOL is measured according to the Integrated QOL theory (Ventegodt et al., 2003j), and is measured with the validated SEQOL questionnaire (Ventegodt et al., 2003f). NS: Not Significant.

*Qualitative evaluation of the degree of association between the factor and the QOL (a–e, see text).

**Difference in percentage between the worst and the best off (single events), or calculated with the method of weight modified linear regression (impact of all events) (Ventegodt and Merrick, 2003e).

regression, and thus we have to judge qualitatively what the size of connection would be, if we had had a sufficient number of respondents.

As the large connections in our study showed a co-variation of 20% global QOL or more, the above mentioned error introduced by the construction of the global all-including QOL measure is generally neglectable. It is important to notice that the way our QOL measure was constructed this does not constitute a measuring problem; we will almost always find a high correlation when $N = 5-10000$ between QOL and the many factors constituting the global QOL or the factors related to them. However, we are not looking at the size of the correlation (the statistical significance), but at the size of the statistical co-variation (QOL difference in percent) showing the clinical significance (Ventegodt and Merrick, 2003e).

Study 1 and 2 are cross sectional studies examining relationships between the QOL, health and other factors in present time. The first included a representative sample of 2500 Danes aged 18–88 years in 1993 with a response rate of 61% (Ventegodt, 1995a; Ventegodt, 1998a). The second study is based on the Copenhagen Perinatal Birth Cohort (Ventegodt, 1996a). This cohort began with the examination of 9006 mothers and their 8820 surviving children (from a total of 9125 children) born at the University Hospital (Rigshospitalet) in Copenhagen, during the 1959–1961 period. 7222 persons were traced 31–33 years later to fill the questionnaire with a response rate of 64.1%.

Study 3 is a prospective cohort study investigating the connection between QOL and a thousand early life factors (Ventegodt, 1996a; Ventegodt and Merrick, 2003a–d). The cohort included 7222 persons from the Copenhagen Perinatal Birth Cohort and the results show the connection between an early life factor and the QOL of the child 31–33 years later.

Study 4 investigated the connection between QOL and major events in life. It is a retrospective cohort study including 746 persons, 55–66-year-olds in Albertslund, Denmark (Ventegodt, 2000).

In the four studies including a total of 11,000 Danes, we have about 2000 factors correlated to the global QOL. For the tables

we have chosen the factors that we believe are the most important for understanding the creation of the QOL state, and the factors normally in focus in the health sciences (included are: “victim of rape”, “sexual satisfaction”, not included is “working as an engineer”, “level of vocational education”).

The tables show the QOL difference in percent, meaning the difference in percentage between the worst and the best off according to QOL. The QOL difference was measured either by (single events), or calculated with the method of weight modified linear regression (impact of all events).

An example of the first is the following (from SEQOL):

Q14. With whom do you live?

- 1 living alone;
- 2 spouse or partner;
- 3 own children;
- 4 partners children;
- 5 adopted children;
- 6 friends;
- 7 biological parents;
- 8 others.

In Table I “co-habitans” is 21.1%, meaning that the difference between best category here according to the measuring (living with own biological children, 6.2% above the average of the population (Ventegodt, 1995a) and worst category (living alone, 14.9% below the average of the population) showed a difference of 21.1%. Another example is the following (from SEQOL):

Q127. How satisfied are you with your sex life now?

- 1 very satisfied;
- 2 satisfied;
- 3 neither satisfied nor dissatisfied;
- 4 dissatisfied;
- 5 very dissatisfied.

In Table I we find “satisfaction with your sex life (men) 30.9%”, meaning that the difference between best category (very satisfied, 11.1% above the average) and worst category

(very unsatisfied, 19.8% below average) showed a difference of 30.9%. Here we have a continuous variable making it more meaningful and exact to analyse the co-variation using (modified) linear regression (Ventegodt et al., 2003e). Using these different ways of analysing the size of the co-variation makes it possible to compare the co-variation of the different life factors with respect to the global QOL (Tables I–IV).

The size of the co-variation gives us the clinical significans, which is impossible to judge from the statistical correlation alone (the statistical significance). We have invented a method to obtain a direct quantitative measure of the statistical co-variation, making it possible to compare all the associations directly and quantitatively (Ventegodt et al., 2003e), instead of using the Cohen's suggestion of simply interpreting effect size as "low", "medium" and "high".

RESULTS

Study 1 and 2 (Table I and II)

Here we found the strongest association between QOL and the relationships to oneself, the partner and friends. Satisfaction with personal sex life was also a substantial factor. With respect to values, number and diversity was decisive. Health problems were also strongly related to QOL, as were mental disorders. Good relations with one's children (if any), siblings, acquaintances and nature and society were also somewhat strongly correlated, as were self-evaluated economic status. To our surprise having children showed no strong relationship to QOL, and neither did relations with one's parents. Lifestyle factors such as tobacco and alcohol consumption, drug use, exercise, and diet did not seem particularly important.

Which factors showed hardly any variation with the QOL? Objective factors like annual income, age, sex, weight, and social group did not. Two exceptions were the unemployed and social-security recipients, who experienced a QOL lower by 5–10%.

TABLE III
Early life factors

Quality of life and ...	QOL difference % *
... The child's ability to sit at the one-year examination (sit badly and bent forward versus sit naturally)	21.0
... Mother's medication during pregnancy (painkillers in first month)	15.3
... Age when the child walks with support (before the 7th month versus does not walk when one year old)	14.2
... Hanging day one – no moving	13.4
... Signs of brain damage in the child (tense fontanelles versus none known)	12.9
... Malformations in the child (central nervous system)	12.3
... Disease in the child's first year (meningitis)	11.7
... Washing machine versus soap (indicates the mother's financial state)	11.3
... Mother's illness (syphilis) before pregnancy	8.9
... Accidents (other than cranium trauma, poisoning)	8.9
... Mother's congenital malformations	8.8
... Infection in the first year (lymphatic node in armpit versus none)	7.9
... Institutionalised during the first year of the (9–10 months versus not institutionalised)	7.4
... Social status (Svalastoga's system) at the child's one-year examination	6.9
... First year of life, overview	5.9
... Abnormal findings in the child at the one-year examination (locomotive apparatus, central nervous system, respiratory system)	5.6
... Does not stand at one year despite support	5.1
... Mother in bed-sitting-room or similar	4.5
... Age when child stands with support (7–8 months versus 12 months)	4.3
... Traces of neglect at one year (child's skin very dirty)	4.2
... Time when child walks without support (cannot at one year versus can walk by 12th month)	3.9
... Mother's situation: overview	3.8
... Failed contraception (condom)	3.8

TABLE III
(Continued)

Quality of life and ...	QOL difference % *
... Manner of delivery: expression (assistance during the birth)	3.8
... Does not walk despite support at one-year examination	3.8
... Child's length at birth (45–47 cm versus 50–51 cm)	3.5
... Mother with a mental illness during pregnancy (psychopharmacological medicine late in pregnancy)	3.4
... Mother's attitude towards the present pregnancy (the child wanted versus unwanted)	3.4
... Start of life: overview (3 domains)	3.3
... The nose blocked up at the one-year examination	3.3
... Valgus position, one foot (versus nothing or both)	3.2
... Child placed in residential care after birth (versus taken home with mother)	3.1
... Marital status at conception (married versus divorced)	3.0
... Mother smoking during pregnancy (more than 10 cigarettes a day)	2.7
... Breast fed versus formula from first day	2.9
... Marital status of mother at one-year examination (married versus unmarried)	2.8
... Head circumference, first day (30–32 cm versus 34–36 cm)	2.8
... Start of life, overview (best/worst in three areas)	2.7
... Age when child stands without support (not by one year versus stands before 12th month)	2.4
... Mother's abortion attempts	2.2
... Hospitalisation in child's first year (1–2 months versus never)	2.2
... Child's height at 1 year (81–85 cm versus less)	2.2
... Mother is overweight	2.1
... Gender of the child (male versus female)	2.1
... Strong physiological screaming, first day	1.8
... Child's weight at 1 year (more than 12 kg versus less)	1.6
... Illness in the child's first year (lungs, bronchi/trachea)	1.5

TABLE III
(Continued)

Quality of life and ...	QOL difference % *
... Day care in child's first year (did not take place versus took place)	0.3
... Natural reflexes at one year (versus other things)	0.3
... Adoption	NS

The connection between global QOL and early events during Pregnancy, Birth and Infancy (1000 factors investigated in total); only statistically ($p < 0.05$; NS: Not significant) and clinically significant factors listed. Difference in global QOL is measured according to the Integrated QOL theory (Ventegodt et al., 2003j), and is measured with the validated SEQOL questionnaire (Ventegodt et al., 2003f).

*Difference in percentage between the worst and the best off (single events), or calculated with the method of weight modified linear regression (impact of all events) (Ventegodt and Merrick, 2003e).

If we use these documented relationships between the QOL and various life factors as a basis for speculation about what is important in life, it seems as if QOL derives from good relations, with the close as well as the distant world. What the person possessed in objective terms – money, status, work etc. – did not seem to be important to the QOL of the individual person. The results indicated that what is really important is not *what you have*, but *how you see and evaluate what you have*.

Study 3 (Table III)

This study showed, that illness and other biological factors were probably less influential in determining the QOL of the adult, than psychological and social factors. All in all there was a very modest connection between most of the early life factors and the global QOL of the adult person. When examining the mother's social situation during pregnancy to find various groups, where it would have been expected to have a long-term effect on the offspring, we could not find a connection. No matter which group we looked at: the young, the single, mothers with psychiatric disorders, the very poor, mothers who did not want their child, the physically ill or disabled, the

TABLE IV
Major events in life

Life Event (impact of single event)	QOL-difference % *
Conversion to a new religious belief	-21.7
Unable to walk	-21.1
Sexual assault by well-known offender	-20.8
Threatened with violence upon family	-18.6
Diagnosis: Lupus	-17.6
Psychotherapy in two periods	-16.4
Victim of rape	-15.7
Incest, without intercourse	-15.4
Invalidity pension	-15.3
Sexual assault: Pawing	-13.9
Paralysed, damaged or lack of body parts	-13.9
Catholicism	-13.0
Expulsed from a group	-12.9
Lack of care in childhood	-12.3
Attempt of rape, 1st time (women)	-12.1
Two psychiatric hospitalisations	-11.9
Registered in a credit-bureau	-11.9
Cannot run	-11.9
Venereal diseases	-11.6
Other serious physical disorders	-11.5
Unrealistic re-payment arrangement	-11.3
Peak experiences: Survival journey	11.3
Got kicked under attack	-11.2
Former an atheist, but now a believer	-11.0
Sex harassment	-10.8
Suddenly becoming abandoned by a close friend	-10.8
Fear of death	-10.8
Personal growth: fasting	10.5
Brain bleeding	-10.3
Debts to the public authorities	-10.3
Communism (political standpoint)	-10.3
Arthritis (diagnosis)	-10.3
Owing money, going to Bailiff's court	-9.8
1st. psychiatric hospitalisation	-9.5
Neurosis (diagnosis)	-9.3
Was adopted	-9.0
Peak experience: Out of your body/synchronicity/psycho kinesis	8.9

TABLE IV
(Continued)

Life Event (impact of single event)	QOL-difference % *
Use of drugs as a life event: Tranquillisers	-8.7
Cannot go up/down stairs	-8.7
Meeting with Bailiff	-8.3
3rd. medical hospitalisation	-8.3
Lack of psychological contact with parents	-8.1
Early retirement pension	-8.1
A (former) period with good friends	-8.1
Use of drugs as a life event: Sleeping pills	-7.9
Social Security benefit	-7.8
Psychoactive drugs, 1st. period	-7.7
Lack of physical contact with parents	-7.7
Cannot lift heavy things	-7.7
Removal of birthmark	-7.7
Period with strong religious doubts	-7.6
Bad blood circulation	-7.5
2nd. medical hospitalisation	-7.4
Chronic bronchitis (diagnosis)	-7.4
Partner died	-7.2
Period of alcohol abuse	-7.2
Had a relationship with a much younger partner	-7.1
Money: Lost in properties	-7.0
Hobbies: Zoology	-7.0
Sexual assault: Obscene remarks	-6.9
Abdominal disorders	-6.9
Experienced a life crisis	-6.7
The partner left	-6.6
Perfectly tuned relationship with partner	6.5
Depression (diagnosis)	-6.3
Partner fails utterly	-6.2
Period with a great sense of loneliness	-6.2
Cheated (first time)	-6.1
Experience of the world falling apart	-6.1
Job offer/job training	-6.0
Illnesses of the back	-6.0
Serious crisis between oneself and mother/father	-5.9
Been officer in the army	5.8
Sexual assault: Exposed naked	-5.8
Unemployment in two periods	-5.8
To be let down by a close friend	-5.6
Experienced someone death by suicide	-5.5

TABLE IV
Continued

Life Event (impact of single event)	QOL-difference % *
Hypertension (diagnosis)	-5.5
Sports: Running, marathon or similar	5.4
Scold ones children often	-5.0
Likes: New Age (music)	-5.0
Father/mother moved away	-5.0
3rd. surgical hospitalisation	-4.9
Suffered from a serious physical illness	-4.5
Had a relationship with a much older partner	-4.3
Pneumonia (diagnosis)	-4.2
One or more divorces	-4.1
State of perfect balance in your life	3.9
Human relations with complete openness	3.9
Partner was unfaithful more times	-3.9
An experience of sudden, deep insight	3.8
Serious crisis with child	-3.7
1st. medical hospitalisation	-3.7
Perfect part of a community	3.5
Diminished acoustic capacities	-3.3
Using pain-killers (self-bought)	-3.1
Socialist People's Party (political standpoint)	-2.8
1 or more crisis in one's partner relationship	-2.8
Paralysed, damaged or lack of body parts	-2.8
Joined a political party	2.7
Incurable cancer (including skin cancer)	-2.6
Money: can afford to do what you want	2.5
Liberal (political standpoint)	2.5
2nd. surgical hospitalisation	-2.3
Always been a believer in good	2.1
Done military service	2.0
Sports: Swimming athletics, cycling or similar	1.9
Been in complete control of your economy	1.5
Interest: for food/wine	1.3
Sports: Trekking	1.2
Devoting yourself to your work completely	1.2
Very interested in theatre	1.1
Became a father/mother	1.1
First marriage	0.7

TABLE IV Continued

Life Event (impact of single event)	QOL-difference % *	
Analysis of the statistical connection between life events and QOL (impact of all events) (all $p = 0.01$ *)		
Most common emotion (on a positive-negative scale)	b	25.4
The average level of events not integrated	b	25.1
Level of integration of five-year-old life events	b	25.1
Number of essential physical health symptoms	c	-13.6
Very negative events arranged in order of time	c	12.2
Number of good events minus bad events	c	11.8
Number of life events not integrated	c	11.5
Number of very negative life events not integrated	c	10.7
The number of important, very negative events not integrated	c	9.9
Number of bad life events	c	8.8
Number of events containing good feelings	d	6.9
Number of life events	e	6.1

The connection between global QOL and 1000 different life events; only statistically ($p < 0.05$; NS: Not significant) and clinically significant factors listed. Difference in global QOL is measured according to the Integrated QOL theory (Ventegodt et al., 2003j), and is measured with the validated SEQOL questionnaire (Ventegodt et al., 2003f).

*Difference in percentage between the worst and the best off (single events), or calculated with the method of weight modified linear regression (impact of all events) (Ventegodt and Merrick, 2003e).

uneducated, the mothers who had their children adopted at birth – the overall impression was that the children as adults were largely unaffected by the mothers' social situation during pregnancy. Children from the lowest social group (according to Svalastoga, 1959) were as adults only 6.9% (spread 7.4) below the average QOL score of the cohort.

We found correspondingly modest connections, when we examined pregnancy and birth, even when we looked at: the mothers who gave birth prematurely or post-maturely, the mothers who contracted a virus during pregnancy, the mothers who worked with chemicals during pregnancy, the mothers who were exposed to X-rays, those who had pregnancy

toxaemia, the mothers whose labour lasted more than 12 hours, the mothers who had a caesarean section, the mothers who had large scars in the placenta and the mothers whose children lacked oxygen.

Throughout this section one cannot help thinking that these factors must have had some influence on the child in later life, but in terms of QOL we practically found little connection. The few exceptions were maternal smoking and medication taken during pregnancy, especially the consumption of painkillers and psychopharmacological drugs. It seemed from our study that tobacco and pharmaceuticals were not well tolerated by the unborn baby, though the baby was resilient to many any other factors (that is assuming they survive to adulthood).

For the first year of life we examined all the factors, which ought to indicate a reduced QOL for the adult person. As a group, the persons who contracted meningitis were 11.7% below the average in overall QOL. The group that have the slowest motor development were 14.2% in overall QOL below the group that developed most quickly. Long periods of institutionalisation during the first year of life were associated with a 3–7% lower QOL compared to those who lived with their mother at home. Very dirty skin, used to indicate neglect, was associated with a reduction of 4.2% in the QOL of the adult.

It is not accurate to say that a bad start in life is not reflected in later life. But considering the disadvantage in social situation, which happened to some of these children in the research, the effect on their QOL in later life was extremely modest. When we combined those adults, where the mothers had the worst social situation, pregnancy and birth complications and gather this group into those who had the worst first year of life you might expect to obtain a cumulative effect, which might point to the adults with the lowest QOL 31–33 years later. This was not the case. Those who were low in all three areas had only 5% below the average QOL.

Therefore, despite our attempts to create groupings that might show greater connections, we found only a 10% connection between the early life factors and the QOL of the adult. From earlier research (Veenhoven, 2004) we know that there

are many people, who have had a bad life. Now from our long-term study we know that low QOL cannot be connected to the early factors we have examined in this research. Of course this does not mean that there are not other early factors, which could affect the QOL of the adult.

We conclude from this study that despite examining 1000 diverse early life factors we could not find those, which determine the QOL of the adult. The results suggested that the QOL of the adult was probably not determined by early childhood events – contrary to the beliefs held by many psychologists, therapists and psychoanalysts. Other factors must therefore play a greater role in determining the QOL.

Study 4 (Table IV)

From earlier surveys and analyses we were accustomed to extensive associations between QOL and subjects like sexual satisfaction or self-estimation of physical health, but in this survey major associations were rare. Most isolated associations were intermediate or minor as seen in life events related to economy, employment, friends or relationships, experiments with personal development, military events, peak experiences or political affiliations. As expected, life events related to health, such as restraints of movement or psychological illness showed a major association with the QOL.

The most remarkable associations appeared from the last part of the questionnaire, which looked at the extended and more superior association between QOL and life events. The connection between QOL and emotional contents of a life event such as anger, sorrow or hate was analysed, and also the connection between QOL and the extent to which the events have been emotionally processed (integration level). Apparently, good and bad life events do not sum up the QOL. In order to arrive at such a conclusion, it was necessary that the questionnaire touch as many life events as possible. In comparison it seemed that the actual QOL was determined by how the events have been processed and thus integrated. Conclusively, it seemed likely that it is our attitude to what happens to us that

determine our QOL, more than it is our luck or misfortune (events both good and bad) throughout life. From this last study we conclude that:

- QOL cannot be explained solely by the bad life events that contain negative feelings.
- People who are good at processing the events in their life statistically possess a good QOL.
- Processing a bad event removes the negative importance to the QOL.
- Time only heals the wounds of life events, if negative experiences are processed.
- Many, small life events means more to the QOL than a few and bigger events.
- QOL is determined not by life events, but the way we relate to life.

DISCUSSION

What is unique about the Danish Quality of Life Survey is the access to the Danish Perinatal Birth Cohort 1959–1961, our effort to map all indicators related to global Quality of Life (QOL), and the comprehensive SEQOL questionnaire (30 different versions during 7 years of development and pilot studies), using optimised rating scales based on QOL-theory and strict new methodology (Ventegodt et al., 2003c–l). As such birth cohorts are extremely rare, because they are expensive and time consuming to conduct, and since long-term follow-up of the global QOL is a recent idea, we have to our knowledge not seen similar studies carried out in the world. We therefore believe our data and findings to be of a unique nature. For a more general approach to QOL we refer to the database on happiness by Ruut Veenhoven (Veenhoven, 2004). Other studies (Bor et al., 2003; Kitamura et al., 2002; Wilkins et al., 2004) have similar designs as the present study, but are focusing on health-related QOL, behavior, self confidence or life-satisfaction, and not global QOL.

The data presented in this paper suggested that a wide range of indicators were related to the global QOL. As shown health seems to have considerable associations with the global QOL, and therefore the promotion of a better QOL seems important, not only for the motive in itself, but also for the improvement of people's health. In this paper we have found numerous QOL dimensions strongly associated with both mental and physical health. The causal direction is in many cases unknown and several of the indicators will not be likely or advantageous to make an effort to change.

It is not the actual events in your past that determine your QOL, but rather the way that the events were integrated in the mind. This gives us a foundation to describe means to promote the global QOL and hereby the overall health, like improving your relationships, developing a more positive responsible philosophy of life and integrating your past in order to heal existentially.

These findings are in agreement with the life mission theory that we developed (Ventegodt, 2003; Ventegodt and Merrick, 2003f; Ventegodt et al., 2003t-w, Ventegodt et al., Submitted) to explain that happiness and QOL comes from living your purpose of life in the present time and succeed to take responsibility for your life here and now by expressing the talents in your life. If health, QOL and ability comes from an optimal tuning of philosophy of life and attitudes here and now, the question is how this positive and healthy state can be brought about.

There are many examples of a person in a sub-optimal state of being, who develop into what is known as "the natural condition" of this person, a condition where the person knows himself and uses all his efforts to achieve what is most important for him. The idea of personal development seems to be in accordance with the findings that QOL is created in the present, almost independently of the past experiences, even with severe early life traumas.

The holistic process theory of healing (Ventegodt et al., 2003x-aa) and the related QOL theories we developed (Ventegodt et al., 2003j; Ventegodt et al., 2003k-l) states that

the return to the natural state of being with optimal QOL is possible, whenever the person gets the resources needed for the existential healing. Our position here is not that a person is not damaged by the early traumas, but that he is able to heal his existence given the necessary support. The resources needed for this are in the dimensions: awareness, respect, care, acknowledgment and acceptance with support and processing in the dimensions: feeling, understanding and letting go of negative attitudes and beliefs.

In letting go of negative attitudes and beliefs the person returns to a more responsible existential position and an improved QOL and this is exactly what we see in this study, where we found that philosophy of life and self-perception was of major importance to QOL and health. The philosophical change of the person healing is often a change towards preferring difficult problems and challenges, instead of avoiding difficulties in life (Merrick and Ventegodt, 2003; Ventegodt et al., 2003m–s). The person who becomes happier, and more resourceful is often also becoming more healthy, more talented and able of functioning (Ventegodt et al., 2003a–b; Ventegodt et al., 2004b). Happiness being a thing to obtain individually and independently by developing a more positive philosophy of life seems to be in accordance with the findings of the present study. Life style and behavioural factors in this study plays a much more modest role in creating the QOL.

Taken all together the data suggested that global QOL in a paradox way was created through our consciousness, attitudes and way of connecting to life, our self and others. Global QOL is not in a simple way a product of a person's efforts through time, of money, of education or of social status. Our four populations studied included 11 000 Danes and 2000 different factors associated to QOL, which seemed to point to the Asian doctrine of "no mind", or to "the power of now" in more modern language (Tolle, 1999). Global QOL is not a head-and-mind-project, but a life-project closer to feelings and emotions. To develop global QOL is not a rational project, but rather a project of love. It is even a spiritual project of coherence with the world and transcendence of the ego. Global QOL is really about being a perfect

part of the present reality, thus supporting the ideas of thinkers like Jung (1964, 1968), Antonovsky (1985, 1987), Maslow (1962), Frankl (1985), and more recently Bohm (1980), Goleman, and the Dalai Lama (1997, 2003).

Deeply moved and challenged since the beginning of our QOL research began by the paradox and often unsuspected findings, we have been devoted through our consciousness to analysing the strange ways the human being create global QOL, relations, health and ability (Ventegodt et al., 2003s; Ventegodt, 2003). The quantitative data taken all together seem to give substantial support to the idea that global QOL and health, even our physical health, is primary created through our consciousness, choice of perception and subsequently our behavior and experience.

The way we deal with feelings and emotions seem to play a central role. It seems that we can upgrade our consciousness by integrating our emotionally negative life-events and thus recover our physical, mental and spiritual character. If we find our purpose of life and natural state of being we will be able to heal existentially and improve our global QOL (Ventegodt et al., 2003s; Ventegodt, 2003). What was most surprising from our studies of global QOL was that this could be done independently of the objective status of both past and present. This is a very important difference between health-related QOL and global QOL. Improving the global QOL is in the end an existential question of stepping into character, leaning into life fully, and acknowledging spiritual dimensions like will, truth, and love for life.

In all our studies of global QOL we have found this very strong statistical connection between QOL, health and ability, a fact that often is not focused on in much of our health research. We believe that improving global QOL in general will lead to improved health and ability. The results from the Danish Quality of Life Survey taken all together are thus a scientific basis for a consciousness-based medicine.

The most important limitation of the study is the fact that the integrative QOL theory state that the existential dimensions of QOL are the most central and important. These dimensions

associated with concepts like meaning and coherence are hidden deep in human existence and are often beyond words, making quantitative measuring of the most important QOL dimensions impossible. Statistical analysis has giving us a lot of troubles in this study, because global QOL in its most abstract and all-including sense is connected – also in theory – to almost any life factor, past or present. Finally, the problem of interpreting such a vast amount of data into a final conclusion is closely connected to the hermeneutic problem, with a danger of just confirming previous belief, instead of learning something new from falsification, because the high level analysis is connected with getting so far away from the concrete data, that freedom of interpretation grows very large.

CONCLUSION

The global QOL is closely connected to health. Where health is very difficult to change, there are a number of factors related to QOL that actually seems changeable. Some of these factors can be changed by the person, like attitudes and general philosophy of life, the liking of others, the inner state of harmony and balance created from integrating one personal past and learning from everything that has happened in life, including the emotionally negative events. A very interesting finding from our study was that the yearly income, social group, educational level, and other objective factors showed only a very limited association with global QOL and health. This is interesting as most people in our time strive for material wealth and social status, which in fact does not give a better QOL and health. Many people blame their past for their poor QOL, but our findings did not support this idea. Often physicians are very concerned with children not developing according to schedule, but our research seemed to show that early factors seldom play an important role in the QOL even 33 years later.

ACKNOWLEDGMENTS

The Danish Quality of Life Survey and the Quality of Life Research Center was 1991–2004 supported by Grants from the 1991 Pharmacy Foundation, the Goodwill-fonden, the JL-Foundation, E. Danielsen and Wife's Foundation, Emmerick Meyer's Trust, the Frimodt–Heineken Foundation, the Hede Nielsen Family Foundation, Petrus Andersens Fond, Wholesaler C.P. Frederiksens Study Trust, Else & Mogens Wedell-Wedellsborg's Foundation and IMK Almene Fond. We gratefully acknowledge the critical scrutiny and expert linguistic assistance of Ib Ravn, PhD. The research was approved by the Copenhagen Scientific Ethical Committee under number (KF)V.100.2123/91.

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PARTICIPATORY PARTNERSHIPS: ENGAGING AND EMPOWERING TO ENHANCE ENVIRONMENTAL MANAGEMENT AND QUALITY OF LIFE?

(Accepted 15 December 2004)

ABSTRACT. It is generally believed that, when partnerships with civil society are created, members of the public become engaged in defining and solving problems, and as a result become empowered through enhanced understanding of substantive problems, and of the processes used by society to deal with them. In this context, two fundamental assumptions related to a partnership approach deserve examination. First, partnerships assume a shared vision among partners, and a willingness to work together in a spirit of collaboration and cooperation. However, humans often are competitive, protective and defensive, attributes unlikely to lead to collaboration and cooperation. Second, advocates of a participatory approach advocate, or assume, that citizens will become empowered through being part of a partnership process. If partnerships are to be encouraged, we need to know if such a transformation actually occurs. Two experiences in Canada, one dealing with shared decision making during a resource and land use management process in British Columbia, and the other focused on an environmental impact assessment process in Manitoba, provide evidence that challenges whether these assumptions are easily satisfied.

CONTEXT

In seeking to improve environmental management, and thereby enhance quality of life, environmental managers usually must deal with: (1) rapid *change* regarding natural and human systems, including needs and expectations, (2) high levels of *complexity*, especially as humans increasingly intervene to modify natural systems, (3) significant levels of *uncertainty*, often leading to turbulence and surprise, and (4) frequent *conflict* due to legitimately different needs, interests and values

(Mitchell, 2002, pp. 8–19). These conditions highlight that most management decisions do not require only technical expertise. In situations in which needs, interests and values compete, technical knowledge is needed, but is rarely sufficient.

Against such a background of change, complexity, uncertainty and conflict, multi-party, stakeholder, partnership or participatory approaches are increasingly being advocated and used (Carrm et al., 1998; Gray, 1989; Grimble and Chan, 1995; Healey, 1997; Palerm, 2000; Randolph and Bauer, 1999; Wacker et al., 1999). The rationale is a belief in the value of drawing upon a multitude of experience, knowledge, understanding and insight when dealing with problems. It is also well understood that including multiple participants to create partnerships can add to the cost and time for making decisions. Nevertheless, while such extra time and cost may be incurred, experience also has shown that those are primarily in the short term. As result, it is increasingly argued that modest additional time and cost in the initial stages of an initiative should be viewed as an investment to save time in the mid and longer term, through avoiding protests from the public when a final design for a project is announced, or at the time implementation is about to start. In that regard, a style of decision making termed “DAD” (decide, announce, defend) is not ideal, and should be replaced by a more consultative and participatory approach.

Why is it believed that participatory partnerships are a better model for management relative to one based primarily on expert input? Several reasons are given. By consulting with people in a region who will be affected by an initiative, and forming a partnership with them, advantages include: (1) defining problems more effectively, (2) accessing information and understanding outside of the scientific realm, (3) identifying socially acceptable solutions, and (4) creating a new sense of ownership of both problems and solutions, which leads to more effective and sustained implementation (Duros and Watson, 2002; Grimble and Welland, 1997; Haughton, 2000; Innes and Boohr, 1999a, b; Menegat, 2002; Michaels et al., 1998; Mitchell, 2002, p. 183; Paulson, 1998).

In addition to the above reasons for using participatory partnerships, the reality is that the “public” today is generally less willing to accept decisions by politicians, bureaucrats or scientific experts. The public understands very well that environmental management decisions often involve a blending of technical, economic and social considerations, and they are increasingly unwilling not to have a role. However, many of “the public” are busy enough coping with their own lives which involve earning a living, and being committed to family and/or friends. Consequently, for practical reasons, managers often turn to members of civil society, or non-government organizations (NGO’s), in order to forge partnerships. When that is done, a key requirement is to obtain a good cross section of such NGO’s, to ensure that the main values in a society are represented in any partnership.

Before considering key opportunities or obstacles for partnerships, it is appropriate to clarify definitions of key terms: (1) *Partner*: A person or group who shares risks and gains; (2) *Participate*: To have a share; take part; share in an undertaking; (3) *Collaborate*: To work together; (4) *Cooperate*: To work together; unite in producing a result; (5) *Empower*: To give power or authority to; to enable or permit; and (6) *Compete*: To try hard to obtain something wanted by others; be rivals; contend; to strive for preeminence. Tension exists between some of these concepts, especially “competition” relative to “collaboration” and “cooperation”. In the next section, the implications for such tension are considered.

OPPORTUNITIES OR OBSTACLES, REGARDING PARTNERSHIPS AND COLLABORATION

Cooperation and Collaboration, or Competition?

Cooperation and Collaboration. Cooperation and collaboration both imply willingness of two or more people or groups to work together. When this is done through a partnership, the implication is a sharing of knowledge and expertise, along with

sharing of risks and benefits from working together. The motivation for such an approach is similar to that for partnerships in the private sector – different individuals or groups contribute specific knowledge, experience and expertise, which lets the partnership accomplish goals not achievable by any one participant.

In environmental management, the benefits of collaboration are increasingly being recognized, and it is being appreciated that collaboration can occur for various purposes or ends (Gunton and Day, 2003). For example, Himmelman (1996, p. 22) stated that collaboration can be used for exchanging information, altering activities, sharing resources, and enhancing each other's capacity for mutual benefit and to achieve a common purpose by sharing risks, responsibilities and rewards. In a similar manner, Gray (1989) observed that collaboration allows stakeholders to alert others about their views regarding different aspects of a problem, and then together to constructively explore differences and search for solutions going beyond any one stakeholder's capacities and limitations. Extending this view, Selin and Chavez (1995) argued that collaboration involves joint decision making in which power is explicitly shared, and that partners take collective responsibility for their course of action and the outcomes.

If a partnership is to thrive, and individuals or groups are to work together for mutual gain, it is desirable to have a *shared vision* (McCann, 2001; Shipley, 2000; Shipley and Newkirk, 1999; Stewart, 1993). As Nanus (1992, p. 8) commented, "a vision is a realistic, credible, attractive future..." which articulates the destination towards which a group or society agrees to aim. The vision represents a future which in significant ways is better or more desirable than the present. Nanus also believes that a "right vision" attracts commitment and energizes people, establishes a new standard or level to aspire towards, and provides a bridge from the present to the future. Senge (1994) echoed this view by arguing that a shared vision can be a force in people's hearts. He concluded that few forces in human affairs are as powerful as a shared vision. But for there to be a shared vision, two or more people or groups must have a

similar picture of the future, and be committed to each other achieving it, not just to each individual achieving it. The implications are clear: a partnership likely will be enhanced if there is a shared vision to which there is a strong, mutual commitment.

Beyond a shared vision, other attributes contribute to effective partnerships (Mitchell 2002, p. 186):

- (1) *Compatibility* between participants based on mutual trust and respect, even when from time to time there may be legitimately different needs and expectations.
- (2) *Benefits* to all partners. If there is not the prospect of benefits for all partners, and if the benefits will not be distributed or shared equitably, the prospects for a sustained partnership are low.
- (3) *Equitable power* for partners, which does not mean *equal* power. Even when differential power is held by partners, all partners must be able to be involved, and feel valued.
- (4) *Communication channels*. Potential for misunderstanding and miscommunication always exists, even in the presence of mutual trust and respect. Often, not enough time and resources are allocated to ensuring sufficient communication. This need becomes even greater if partners are in different physical locations.
- (5) *Adaptability* allows a partnership to respond positively to the inevitable change, uncertainty and conflict which will be encountered.
- (6) Presence of *integrity, patience and perseverance* by all partners. Obstacles will need to be overcome, and progress will not always occur as quickly as everyone would like. Combined with mutual trust and respect, these three attributes help partners deal with difficult situations.

The above ideas are summarized well in a statement by Viessman (1993, p. 14) regarding the components of effective partnerships. In his view:

... partnering must be based on an understanding that the missions, legislative mandates, and administrative policies among partners may be

very different. It requires that differences in view be identified and accepted, and that commonalities in interest be sought as the building blocks for consensus. The goal should be to ensure that there are no real losers, that all receive some spoils in pursuing a common target. Partners must recognize that trade-offs must be made to improve the collective whole. A necessary condition for establishing mutual trust is that partnering arrangements be open, frank and honest. Unless that condition is met, there will be little incentive for meaningful cooperation.

Competition. However, when conceptualizing the preconditions for and ideal attributes of participatory partnerships, we need to be realistic. Partnerships assume a willingness to collaborate and cooperate, while humans often are competitive, and highly motivated by self interest. Indeed, “economic man” or “economic person,” the basis of many models used by economists, is viewed as not only an individual who has access to all information and the capacity to analyze and understand it, but in taking decisions seeks always to maximize the difference between benefits and costs. It further is assumed that many individuals making decisions in their own self interest, and in competition with others, will result in scarce societal resources being allocated in the most desirable manner. Thus, considerable empirical evidence supports the view that people are motivated by self interest and are inclined to be competitive, even though Simon (1965) argued that another credible model can be based on the assumption that individuals “satisfice” rather than optimize, and are not always driven to optimize gains in a competitive environment.

Even if the view is only partially accurate that competition is as or more likely to prevail than collaboration, more time and care should be given to creating management processes based on the presence of competition related to satisfying self interest, rather than on willingness to share, be open, and cooperate. Significantly, we should consider more explicitly how we can design partnerships, both formal and informal, to take advantage of the likelihood of ongoing conflict, based on differing values and interests, to ensure that conflict is a positive force.

Empowerment and Transformation?

Ellis (2002, pp. 46–63, Unpublished PhD dissertation) completed a comprehensive and systematic review of the concept of “empowerment”, and concluded that no clear or readily accepted definition exists. Nevertheless, she concluded that six basic components usually characterize empowerment, and these are:

- (1) *self efficacy*, or a range of feelings related to self-worth, ability to be affective in a broad sense, self confidence and positive self image. In the context of environmental management, Ellis noted self efficacy means general confidence and comfort in ability to be effective in a public participation context.
- (2) *knowledge and skills*, or any knowledge and skills relevant to the context or goal of empowerment, extending from knowledge of social, political and economic power structures to basic literacy skills. Key knowledge includes understanding of social and political power systems and power structures, government policies, policy-making processes and how to obtain resources. Key skills include decision making, social and political participation, communication, lobbying, organizing, critical thinking and problem solving.
- (3) *opportunity*, or a wide range of opportunities to take action, including to make decisions and provide input on an organizational management committee, or to mobilize without being repressed. Opportunities can be offered (such as through an invitation to participate in a government or community decision-making process, or can be created, such as through lobbying or community action).
- (4) *action*, including a wide range of activities, from trying to take greater control of one’s own life and health, to running for elected office. This can be pursued by lobbying, or participating in community or government-based decision processes.
- (5) *resources*, can include funding, basic education, and training. Specific resources of interest usually are funding, time, human resources, information and training.

- (6) impact, can range from taking greater control of one's own health or well being to greater ability to do one's job. In practice, impact can involve having a desired affect on policies, events or decision-making processes.

Combining the above characteristics, Ellis (2002, p. 57, Unpublished PhD dissertation) concluded that for environmental management, empowerment could be interpreted in the following manner:

To be empowered, individuals or groups must have self efficacy, knowledge, and skills, opportunity, and resources. They must perceive that they have self-efficacy, knowledge and skills, opportunity and resources. They must engage in some sort of action(s) directed towards a desired impact, and have some sort of desired impact resulting from that/those action(s). They must also perceive that they engaged in that/those action(s) and had a desired impact resulting from that/those action(s).

Through engagement and empowerment, individuals and groups can be transformed (Diduck, 1999; Mohan and Stokke, 2000; O'Sullivan, 1999). Specifically, an often assumed benefit of participatory approaches is that individuals and organizations learn. As Diduck (2001, p. 3, Unpublished PhD dissertation) observed, learning can help to overcome personal constraints on participation, such as lack of knowledge, understanding, or skills, aspects all identified by Ellis as important for achievement of empowerment. Learning through participation also can help to "clarify terms and conceptual models, provide a common base of understanding and, thereby, resolve cognitive conflict. . . As well, it could clarify and make explicit the opposing values, interests, options or actions at the heart of other forms of conflict. Learning. . . could also illuminate unknown situations and identify problems, and thereby, reduce ignorance, . . . Finally, education and learning are likely significant to sociopolitical empowerment, which involves critical reflection regarding structures of power, cooperative problem solving, and collective social action" (Diduck, 2001, p. 3; unpublished PhD, dissertation).

Following Diduck's (2001, p. 13, Unpublished PhD dissertation) ideas, learning occurs through changes (or transfor-

mations) in an individual's "frame of reference" which has two dimensions: *meaning perspectives* (broad epistemic, psychological and sociocultural predispositions) and *meaning schemes* (specific beliefs, feelings, attitudes and value judgements). A transformation happens through critical self reflection about the underlying assumptions of the various elements in a meaning perspective or meaning scheme. The greatest transformations occur when elements of the meaning perspective are altered. Such a shift or change can be triggered by a "disorienting dilemma" or a series of smaller changes, which then are often followed by other phases:

- (1) self examination,
- (2) critical assessment of assumptions about personal role and societal expectations,
- (3) recognition that one's problem may be shared by others in the community,
- (4) exploration of new patterns of behaviour,
- (5) building of competence and self confidence in such new patterns,
- (6) planning of a course of action,
- (7) gaining knowledge and skills to implement one's plan,
- (8) initial efforts to try new roles and gain feedback,
- (9) reintegration relative to a new perspective.

The above discussion suggests that partnerships, built on collaboration and cooperation, have the capacity to trigger learning which will lead to empowerment which in turn results in a transformation for an individual, a group, and eventually, perhaps, a society. At the same time, a basic human characteristic, to be motivated by self interest which leads to competitive behaviour, may impede, hinder or block realization of the potential benefits of partnerships and participatory approaches. The next section considers two studies which provide insight regarding the extent to which learning and transformation do or do not occur.

RESULTS RELATED TO PARTNERSHIPS AND PARTICIPATORY APPROACHES

Empowerment through Shared Decision Making: Land and Resource Management Planning Process in British Columbia

Between February 1996 and November 2000, Ellis (2002, Unpublished PhD dissertation) examined a shared decision making process used in the Okanagan–Shuswap Land and Resource Management Planning Process in British Columbia, Canada. The purpose was to examine whether participants became more empowered, and what variables affected empowerment. This was one instance of the Land and Resource Management Planning (LRMP) process introduced in that province during the early 1990s (Day et al., 2003; Gunton and Day, 2003). LRMP's are based on principles of consensus building, sustainability, and consideration of all resource values. They are usually two to five year sub-regional processes designed to involve all parties with a key interest in the plan. The sub-regions normally cover 15 000–25 000 km². Her purpose was to explore the potential for shared decision-making to facilitate empowerment, and thereby nurture environmental citizenship, among participants through a process of social learning.

In the LRMP, participants were intended to meet regularly for two years to develop consensus on a recommended LRMP for a sub-region. In practice, no LRMP has been completed in fewer than three years. The plans outline how Crown land and resources (owned by the government) will be managed for the subsequent 10 years or longer.

The “planning group” in a LRMP includes different participants. In the Okanagan–Shuswap, a small group (3–6 people) representing key government agencies oversaw the process. A second group of people representing various federal, provincial and local government agencies also had places as members in the process. Another group (15–20 people) of public servants from various government agencies provided technical information and interpretations. The public

was represented by “table representatives” from a range of groups with an interest in Crown land and resource use, including forest companies, ranchers, environmental groups, First Nations, public recreation groups, prospectors, and community groups. The members of the public are mainly chosen and invited to participate by the small government team overseeing the process, with the intent to ensure that all groups with a major interest in Crown land and resource use participate. Once invited, each group selects the individuals and backups who become “table representatives.” If a group felt it should have been invited, but had not, it could apply for membership.

It took awhile for the table representatives to be identified, but after the first 6 months the membership was well established and stable, and included 11 government (7 provincial, 3 local and 1 federal) and 29 public (5 forest, 4 each for mining and environment, 3 each for community and public recreation, 2 each for ranching, fish and wildlife users, and tourism, and 1 each for naturalists, water supply, local roundtable, and trapping) table representatives. In addition, 20–30 alternates and sector members participated.

After training sessions in consensus – building negotiations, the participants started two-day monthly meetings in April 1996. By February 1999, a draft plan had been prepared. During that time, there were some 50 table meetings, with another 100+ subcommittee and working group meetings. Agreement in principle for the plan was reached in May 2000, final ratification was achieved in September 2000, and the provincial government approved the plan in January 2001. The provincial government’s annual direct expenditures ranged between \$150 000–\$300 000, resulting in a total direct cost of \$1 million for the process. This cost does not include the “in kind” contributions of over 30 provincial public servants who devoted some or all of their time to this process.

Ellis collected data between February 1996, when the monthly table meetings started, and July 2001, after implementation had begun. She attended all the table meetings in 1996, and then selected meetings through to 2000. She focused

on all 39 table representatives who had joined the process by the fifth table meeting, and conducted interviews with all participants on three different occasions (July/August 1996; May 1997; September 1998). In addition, she observed and interviewed participants informally on an ongoing basis between 1996 and 2000. Overall, she attended 76 days of meetings, and collected evidence through participant observation, direct observation, interviews, and examination of reports and other documentation.

Ellis analyzed empowerment by concentrating upon six components: self efficacy, knowledge and skills, opportunity, resources, action, and impact, with particular attention to the second, third and sixth components. Of 30 participants from the public groups who she was able to interview for all three stages, when pre-existing levels of empowerment were removed, she concluded that 10 participants experienced large increases in empowerment, 11 had moderate increases, and 9 had little to no increase. An important further conclusion was that only 6 of the highly empowered participants were highly empowered as a result of large increases in their level of empowerment; the remaining 6 very highly and highly empowered participants all had a high level of empowerment before the LRMP process started. Furthermore, the extent to which empowerment gained by participants would be sustainable after the end of the process was unclear. The characteristics of individuals in the various empowered categories are outlined below (Ellis, 2002, pp. 383–384, Unpublished PhD dissertation).

Large Increases in Empowerment. As noted above, 10 people experienced relatively large increases in their empowerment, and Ellis concluded that each would have been categorized into a level of empowerment one lower at the outset of the process. Common characteristics for people in this group included a strong interest in the outcome of the plan, consistently high levels of action throughout the process, and a significant impact on the nature of the final plan. Their already strong knowledge and skills continued to improve. Everyone in this category had a strong interest in and aptitude for, and a positive outlook

regarding, the process and other participants. They also were realistic, noting that all opportunities had constraints and that the purpose was to take advantage of whatever opportunities were provided. Importantly, they also shared a view that they could have a role in creating opportunities, and did not have to wait for government officers or facilitators to make opportunities available. All of them struggled to find sufficient time to devote to the process, and four decreased their time allocation toward the end of the process.

Moderate Increases in Empowerment. Eleven people were placed in this category, and all had started the process in this same category. However, two subcategories emerged within this group. One subgroup included four very highly empowered and one highly empowered individuals. Each experienced increases in knowledge and skills, were very active, and had a major impact. However, since they started the process with a high level of empowerment, they did not grow significantly during the process. People in the other subgroup appeared to encounter one or two factors that constrained growth of empowerment. Four did not have a strong interest in the outcome of the plan, and thus did not become actively engaged. At the same time, each had a natural aptitude for learning, and thus increased their knowledge and skills. The others became very active, but were limited in their empowerment by difficulty in gaining appropriate knowledge about issues. Two people in this group had a negative attitude regarding opportunities, and became bitter because of their perception that other participants seemed to have more opportunities than they did.

Limited to No Increases in Empowerment. Nine individuals had limited to no increases in empowerment. Several aspects were common to all people in this category. None of those in this group took significant action to improve their knowledge and skills. Indeed, six people had a negative attitude related to learning, and had an attitude from the outset they knew everything that was needed to be involved in the process. In this way, they likely overestimated their skills and knowledge, and

their potential to have an impact on the process. Others in this group were constrained by limited aptitude for learning, and/or by a limited interest in the outcome of the process. Those with such characteristics frequently missed meetings, and none became involved in the working groups which were established. Furthermore, rather than seeking to make the best of opportunities that emerged, they often had an attitude of “why bother?”.

Overall, Ellis (2002, p. 391, Unpublished PhD dissertation) noted that it was difficult to clearly answer the question whether shared decision-making processes empower individuals, but she believed that such empowerment was a possibility. On the other hand, she observed that “perhaps not only are those who are relatively empowered more likely to be participants in a shared decision making (SDM) process, but also those who are relatively unempowered are less likely to experience empowerment even if they do participate.”

Ellis’ findings caution us not to be too sanguine about the likelihood of empowerment being created through participation in partnerships or shared decision-making processes. Furthermore, she reminds us that there may be self selection, with strongly motivated or already highly empowered individuals most likely to become engaged, and thereby to grow and further transform. The message from her research is that one of the basic assumptions often associated with participatory approaches and partnerships – individuals will become empowered and transformed through social learning – is not well supported by this case study.

Learning and Transformation through Public Involvement in Environmental Assessment

This case study was of a hog processing facility in Brandon, Manitoba, part of an long-term research program focused on social learning (Diduck, 1999; Diduck and Mitchell, 2003; Diduck and Sinclair, 2002). Diduck (2001, Unpublished PhD dissertation) addressed two questions: (1) to what extent do environmental assessment processes facilitate learning by indi-

viduals who participate in the process? and (2) what are the forms of and constraints on learning by individuals who participate in environmental assessment processes? Evidence was assembled through review of documents, participant observation, and semi-structured qualitative interviews.

The case study involved a proposal to construct a \$120 million hog slaughtering and processing facility and a \$13.5 million wastewater treatment plant. The hog processing plant is owned by Maple Leaf Pork, a subsidiary of Toronto-based Maple Leaf Foods, the largest food processor in Canada. The waste treatment plant is owned by the City of Brandon, the second largest city in Manitoba, with a population in 1996 of just over 39 000 people.

The hog processing plant was constructed to allow two shifts, the first of which began in late August 1999. The plant has the capacity to slaughter and process up to 54,000 hogs each week in one shift. The second shift, scheduled for four years later, would double the plant's output. Effluent from the plant is treated in the new wastewater treatment facility operated by the City of Brandon. The discharge from the wastewater plant, going directly into the Assiniboine River, can be up to 5725 cubic meters daily under one shift, which increases the daily volume of waste from the city into the river by more than 40%.

The siting of the hog plant in Brandon was the culmination of a process by Maple Leaf Pork which extended over 9 months and involved examination of 42 communities in Western Canada. The final decision was brokered by the Premier of Manitoba and the Mayor of Brandon, and included provincial and municipal subsidies to the company, adding up to nearly \$20 million. The project was contentious from the outset, with supporters focusing on economic benefits which included up to 2100 new jobs and a population growth of 7000 people in Brandon over a 8 year period, plus agricultural diversification for Manitoba, and with critics unhappy about the lack of transparency in the decisions to attract Maple Leaf to Brandon, the merits of public subsidies to a private corporation, and the possible negative environmental impacts.

The environmental assessment was conducted under provincial legislation, which requires private projects to be examined through this process. The business community in Brandon and surrounding area supported the two projects, and was led by the Brandon Chamber of Commerce and a Citizens Committee for Responsible Growth (a local NGO formed during the assessment process). Opposition was led by the Westman Community Action Coalition, another NGO established during the assessment. Concern also was expressed by the Long Point First Nation and Portage La Prairie, communities downstream from Brandon which take their drinking water from the Assiniboine River.

Public hearings were not held during the environmental assessment process, but passive methods were used (a public registry, comment periods, administrative appeal procedures). There also were 10 public information meetings organized by the proponents between January 1998 and June 1999. A three-day forum was organized by the Westman Community Action Coalition in October 1999.

During the environmental impact assessment process related to the hog plant and wastewater treatment facility, Diduck interviewed 27 individuals selected from "key publics", which included proponents, federal and provincial government regulators, non-governmental organizations supportive and critical of the project, the business sector, the news media, academics, and private citizens. He also attended two public meetings in October and November 1999, one each hosted by proponents and opponents of the project.

His main conclusions were that "the extent to which EA as currently practiced facilitates mutual learning among participants is quite limited, that is, EA processes deviate quite substantially from the ideal conditions of learning," "the emancipatory potential of participation in environmental assessment is highly restricted," "opportunities for all participants to define their own meanings, intentions and values are limited, which restricts opportunities to self-define broader goals and community futures," "the limits on emancipatory potential impede learning through critical self-reflection on

socio-political presuppositions,” and restrict “opportunities for collective mobilization in opposition to dominant social forces” (Diduck, 2001, pp. 152–153, Unpublished PhD dissertation).

More specifically, Diduck (2001, pp. 149–152, Unpublished PhD dissertation) found serious constraints related to:

- (1) *accessible and complete information*: There was high variation in the quality, quantity and accessibility of information made available to the public. In addition, technical and scientific information was not easily accessible to many members of the general public. In his view, lack of information became a constraint on the potential involvement by members of the inactive public.
- (2) *freedom from manipulation and control*: The project proponent had overriding authority regarding whether and how public participation would occur, outside of the public hearings. Also, proponents had no guidelines which indicated standards or expectations for public involvement.
- (3) *openness to diverse perspectives*: Planning occurs at normative, strategic and operational levels, and public participation was rare in the first two and sporadic at the third. This led to many key decisions being taken without different perspectives being shared in any kind of a partnership between proponents and the publics. It also led many in the inactive public to conclude that participation would have little value, since many key decisions had been taken before the public was invited to share its views. This situation also reflected the lack of standards or guidelines regarding what was expected in terms of public participation.
- (4) *opportunity to reflect critically on presuppositions*: Given the few mechanisms and processes for involvement, the participating publics received little feedback from the proponents, resulting in limited opportunity for social learning, engagement, or empowerment. There also was some sharply divergent views among groups which supported and opposed the project, but, other than the public events, no processes were provided to allow the different views to be shared and examined in constructive forums.

- (5) *equitable opportunity to participate*: The project proponents received disproportionate support from the governments compared to the public. Opportunities for early involvement, at the normative level of decision making, were non-existent to sporadic. This created a visible power imbalance, leading many in the public to be skeptical that input was genuinely wanted, or, if it were given, would have any chance of influencing decisions.
- (6) *opportunity to have arguments evaluated in a systematic manner*: Transparency was not well established for many of the critical decision-making points in the process, outside of the public hearings. This reinforced a perception that integration of public submissions into the decision-making process was poor to non-existent, and reinforced skepticism among the public in the community.

Given the six aspects noted above, he concluded that overall “the emancipatory potential of involvement in EA, and opportunities for mutual learning, could be increased with greater flexibility in EA institutional arrangements to accommodate incremental or transactive approaches to public involvement” (Diduck, 2001, p. 154, Unpublished PhD dissertation).

Diduck’s findings are consistent with those of Ellis. That is, he found that the assumed benefits of participatory approaches and partnerships do not automatically emerge. Their findings therefore suggest the need for rethinking about the role and values of participatory partnerships in environmental management.

LIMITATIONS

Caution must be taken in generalizing from only two case studies, even though each involved systematic longitudinal studies of a kind that are not often completed. It is possible that they are not representative of all types of development situations. Furthermore, some perspectives and voices were not captured, not due to oversight, but because of lack of representation. For example, Ellis (2002, p. 392, Unpublished PhD dissertation) noted that the “absence of women and youth from the process is

also troubling from a sustainability perspective, because if we are to have an active, engaged, environmental citizenry, young people and women should be included.” Her recognition of this shortcoming is a strong call for more research to incorporate a wider range of perspectives.

IMPLICATIONS

In efforts to improve environmental management, and thereby contribute to enhanced quality of life, it is increasingly believed that partnerships and participatory approaches are desirable. The rationale is that becoming engaged through partnerships or other processes will empower individuals and groups, thereby helping to transform them and create a higher level of civil society. However, the results from the case studies in British Columbia and Manitoba suggest caution is necessary related to assumed benefits of partnerships and participatory approaches. The land use planning and environmental impact assessment processes did not generate the kind of emancipatory benefits usually expected. One explanation may be the role of “self-interest” and “competitive nature” which combine to inhibit or suppress the assumed advantages. Consequently, we should not view participatory and partnership approaches in an unrealistic manner, and should consider the implications for the design of institutional arrangements and decision-making processes for environmental management that must function in the context of rapid change, high complexity and uncertainty, and significant conflict.

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MARKETING AND QUALITY OF LIFE: A MODEL FOR IMPROVING PERINATAL HEALTH STATUS

(Accepted 28 June 2004)

ABSTRACT. *Introduction:* A marketing/business model using non-traditional Quality of Life measures was developed to assess perinatal health status on a micro-geographic level. This perinatal health status needs assessment study for Georgia South Central Region was conducted for the years 1994–1999. The model may be applied to any geographic unit in the U.S. – from a block group level to a state or a region. *Methodology:* An Infant Health Risk Score was created for each county and census tract by calculating the Z-scores of various Medical, Lifestyle, and Access variables so as to construct a Quality of Life Index. The scores identified the areas in the region that were at high risk for certain medical, lifestyle, and access variables (i.e., high risk for preterm births, low education levels, and poor access to perinatal services). A marketing tool, Claritas PRIZM Clusters, was used to identify a specific cluster and associated marketing information for each census tract within the region. *Results:* The Infant Health Quality of Life Risk Scores were linked with the PRIZM cluster marketing data to target areas in the region that exhibit high risk medical, lifestyle, and access scores. Health promotion and disease prevention strategies were developed using a marketing/business model. Specifically, media usage and consumer behavior purchasing patterns were identified and processed for every high risk area in the region. The categories for media usage were television, radio, and magazines and the categories for consumer behavior included restaurants, food items, and shopping locations. *Discussion:* The Perinatal Region is developing strategies to implement the media usage and consumer behavior marketing information to focus their prevention efforts to the high risk areas in the region based on the Quality of Life Measurements. Linking marketing business tools with a Quality of Life health status needs assessment has significant potential for improving the planning, the evaluation, and the focus of prevention efforts.

INTRODUCTION

Quality of life (QOL) assessment has been a popular theme of study among researchers in the U.S. and abroad (Bonomi et al., 2000; Morgan and Morgan, 2003). Various instruments of QOL

and Health-related QOL (HR-QOL) have been developed and tested for a broad range of implications. There are usually two different approaches to QOL studies, those that seek to define a generic QOL summary and those specific to a disease or group (Bonomi et al., 2000). Several well-known generic HR-QOL instruments include the SF-36 (Crosby et al., 2003; Garratt et al., 2002), the Sickness Impact Profile (Crosby et al., 2003; Garratt et al., 2002), the Nottingham Health Profile (Crosby et al., 2003; Garratt et al., 2002), and the EuroQol (Crosby et al., 2003; Garratt et al., 2002). Disease specific HR-QOL measures such as the Health Assessment Questionnaire (Bruce and Fries, 2003; Garratt et al., 2002), have been designed for a number of diseases, including obesity, arthritis, diabetes, asthma, pulmonary disease, cancer, epilepsy, and HIV (Crosby et al., 2003).

Until now, research has not explored the assessment of perinatal HR-QOL. Many HR-QOL instruments are recognized as valid when looking at specific health indicators such as morbidity and mortality, but they fail to portray the overall picture of public health needs and prevention outcomes (Hennessy et al., 1994). A perinatal HR-QOL model that incorporates medical, lifestyle, social, and access indicators that impact perinatal health status would substantially enhance the planning and focus of prevention efforts. Although HR-QOL measures can be used to make comparisons among geographical units such as the national, state, and local levels, mechanisms for this level are currently lacking (Dever et al., 2000). The Perinatal Health QOL Model, a unique non-traditional marketing/business model that also uses traditional QOL measures, was developed to assess perinatal health status on a micro-geographic level.

The Georgia Department of Community Health's (DCH) Division of Health Planning and the Health Strategies Council (HSC) devised a plan that designated Perinatal Health Regions that were developed to better implement obstetric and neonatal health care services in Georgia. Six regions were designated. The focus of this paper is on Perinatal Region 6 – the south-central area of Georgia. Perinatal Region 6 contains three of the 19 Georgia Department of Public Health districts (Macon-District 5-1, Dublin-District 5-2, and Valdosta-District 8-1).

The geographical scope of this study includes region, district, county, census tract, and block group analysis. One of the significant aspects of this study is that the Perinatal Health QOL Model may be applied at various levels of geography in the U.S. – from a small area such as block group or to a macro analysis such as a state or a region. Perinatal Region 6 in Georgia comprises 36 counties and 207 census tracts. Only 5 of the 36 counties are defined as urban counties by Metropolitan Statistical Area (MSA) designation. In 2000, the total population for this Perinatal Region was 888,679 (U.S. Census Bureau, 2000). The perinatal health status QOL model for Georgia's South Central Region utilized data for the years from 1994 to 1999. During this time period (1994–1999), the region experienced 74 662 births, 941 infant deaths, 6655 low birth weight births (<2500 g), and 8972 preterm births (<37 weeks gestation). The region's perinatal health services responsible for these events include 18 hospitals, 39 health departments/clinics, and 97 physicians.

We propose that the development of a new Perinatal Health QOL Model will enhance our policy and program efforts by identifying the high risk areas in the region on a micro-geographic level and, thereby, link these areas with marketing strategies, most notably, as provided by the Claritas PRIZM Cluster system, a widely used social, economic, demographic, and psychographic marketing program in the U.S. for targeting populations, to understand the business and marketing aspects of population groups. Our purpose in using this system is to better focus prevention and health promotion strategies which are based more on business and marketing perspectives. It is clear the traditional medical model utilized to improve the outcomes related to perinatal health status has limited success. Therefore, it is our contention that a new model is appropriate for creating an opportunity to reduce the burden of illness on our perinatal population. Thus, we define a Perinatal Health QOL Model.

METHODOLOGY

The Perinatal Health QOL Model (Figure 1), illustrates the algorithm that was designed for impacting and improving

perinatal health status in the south-central region of Georgia, United States of America.

Quality of Life Indices

Spatial Analysis. The model as presented is capable of explaining various levels of geography, such as might be related to small area analysis (i.e., block groups and census tracts). The model is also designed to analyze macro-markets, such as a county, state, or region. In this application we focus on a perinatal region which represents 3 of the 19 Georgia health districts: Macon, Dublin, and Valdosta. Therefore, the spatial

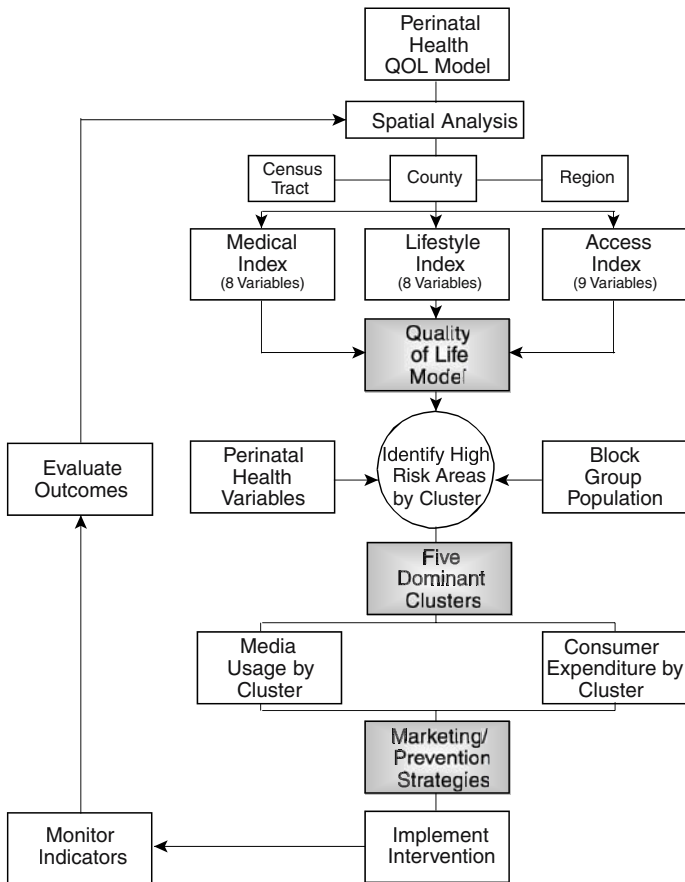


Figure 1. Marketing and QOL model for improving perinatal health status.

analysis for the model represents a region which is comprised of 3 districts, 36 counties, and 207 census tracts (a smaller geographic division of a county). The Perinatal Region in reference to the U.S. and Georgia is shown in Figure 2.

Medical, Lifestyle, and Access Indices. Three factors were defined reflecting 26 variables that are risk criteria associated with perinatal health status. The three factors are Medical, Lifestyle, and Access Indices. The criteria for selecting the risk factors for the medical, lifestyle, and access variables were based on demonstrated relationships that influence perinatal health as supported in the literature, as noted in Table I. Eight variables make up the Medical Index. Examples include the infant mortality rate and the percent of low birth weight births. Nine social indicators such as education level and drug use define the Lifestyle Index. The Access Index is comprised of nine variables. Examples of the Access Index include access to perinatal physicians and insurance status. Table I displays a

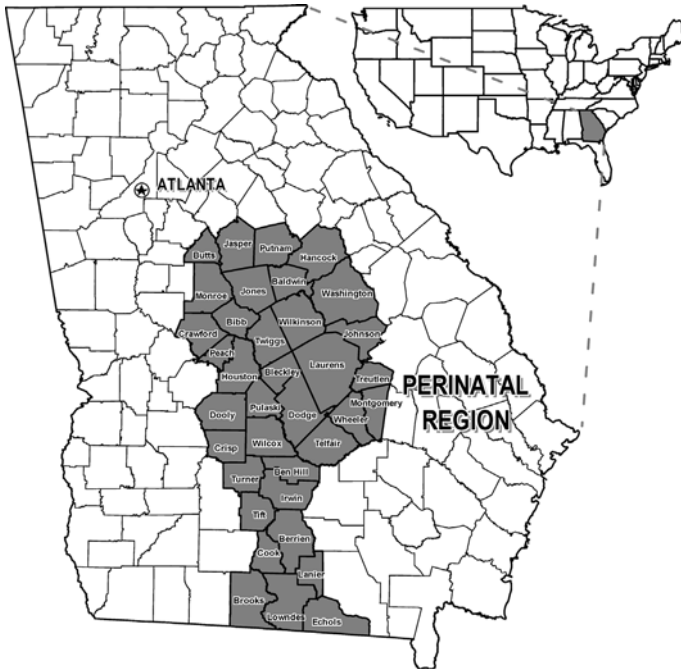


Figure 2. Perinatal Region, Georgia, U.S.A.

TABLE I
 Medical, Lifestyle, and Access Variables Used to Create the Perinatal Health QOL Index

Medical ^a	Lifestyle ^{a,b}	Access ^{b,c,d}
Infant Mortality (Rate)	Mother's Education Level – Did Not Finish High School (%)	Drive-time to Nearest Perinatal Physician (Avg-min)
Birth Weight <2500 g (%)	Mother's Marital Status – Single (%)	Drive-time to Nearest Hospital (Avg-min)
Gestation <37 weeks (%)	Alcoholic Drinks Per Week – None (%)	Drive-time to Nearest Clinic (Avg-min)
Apgar Score at 1 min (Avg)	Smoked Cigarettes During Pregnancy (%)	Distance to Nearest Perinatal Physician (Avg-mi)
Apgar Score at 5 min (Avg)	Father's Education Level – Did Not Finish High School (%)	Distance to Nearest Hospital (Avg-mi)
Mothers having <12 Prenatal Visits (%)	Attended Health Education Classes (%)	Distance to Nearest Clinic (Avg-mi)
No Prenatal care (%)	Unemployment Rate (per 1 000 population)	Lack Personal Transportation (%)
Maternal Weight Gain (Avg-lbs)	Health Status Score	Perinatal Physician Rate (per 10 000 population)
	Socioeconomic Status Score	No Household Insurance (%)

^aData from Georgia Department of Human Resources, Division of Public Health. Vital Records. 1994–1999. ^bData from Inforum,[©] a Division of Claritas, Inc. 2000. ^cData from Georgia Board for Physician Workforce Database. 2000. ^dData from Georgia Department of Community Health. Annual Hospital Questionnaire. 2000.

complete listing of the risk variables for the Medical, Lifestyle, and Access Indices that were included in calculating the overall Perinatal Health QOL Index.

All variables for each of the factors were standardized into Z-scores to produce a simple Z-score additive model. The classic method for “standardizing” a set of values (finding a common metric or scale) is the calculation of Z-scores. The

Z-scores are anchored by the mean and standard deviation of the original values, and rescaled such that the new mean is 0 and the new standard deviation is 1. The resulting Z-scores correspond to points on the standard normal curve, with a theoretical range of approximately -3 to $+3$. The actual range for each indicator, however, will be different. The Z-scores can be calculated for individual level or aggregate level data. In either case, each value is treated as an "individual" member of a sample. The Z-score standardization process does not alter the distribution of the data. If the data set is abnormally or normally distributed, the Z-score does not impact on the distribution.

A separate Z-score, Infant Health Risk Score, for each Medical, Lifestyle, and Access Index was calculated and summed for the 36 counties and 207 census tracts in the Perinatal Region. Table II displays the results of calculating the Z-scores of one medical variable, the infant mortality rate. Table II also shows how the Medical Index was calculated by adding the Z-scores of all eight medical variables. A numeric rank from 1 to 36 was given to every county, and a rank of 1 to 207 was given to every census tract, reflecting lowest to highest risk, respectively. The census tract analysis is not shown in the paper. After the counties and census tracts were ranked, a grading scale of A-B-C-D-F was given to every county and census tract. As shown in Table II, each county was given a grade for the Medical Index by calculating the mean and standard deviation for the Z-score of the Medical Z-scores column. The grades were assigned based on the plus and minus deviations from zero so that an almost normal distribution resulted. For example, a value greater than -1.0 standard deviation received a grade of A, while a value of greater than 1.0 standard deviation received a grade of F. The former reflecting five counties and the latter representing seven counties. Thus, there were 5 A counties, 8 B counties, 12 C counties, 4 D counties, and 7 F counties. The formulas used to calculate the Z-score, rank, and grades of the Medical Index were likewise used to calculate and determine the Lifestyle and Access Indices.

TABLE II
The Z-Score Calculation of Medical Index by County
Z-Score and Rank of One Medical Variable Z-Score and Rank of All Medical Variables

County	Z-Score and Rank of One Medical Variable			Z-Score and Rank of All Medical Variables			
	Infant Mortality Rate ^a	Z-Score	Rank	Medical Z-Scores (Sum) ^b	Z-Score of Medical Z-Scores ^c	Rank	Grade
Wheeler	7.5	-1.1	4	1.32	-1.67	1	A
Treutlen	11.3	-0.2	19	1.90	-1.55	2	A
Montgomery	6.5	-1.3	2	1.98	-1.53	3	A
Berrien	8.0	-1.0	6	4.15	-1.08	4	A
Laurens	16.2	0.9	33	4.21	-1.06	5	A
Dodge	7.3	-1.1	3	4.86	-0.93	6	B
Irwin	5.9	-1.4	1	4.86	-0.93	7	B
Johnson	10.3	-0.4	11	5.07	-0.88	8	B
Houston	9.9	-0.5	8	5.14	-0.87	9	B
Jones	10.3	-0.4	12	5.39	-0.81	10	B
Crawford	15.7	0.8	32	6.15	-0.65	11	B
Cook	10.1	-0.5	9	6.43	-0.59	12	B
Butts	11.2	-0.2	17	6.52	-0.58	13	B
Jasper	14.2	0.5	27	7.68	-0.33	14	C
Lanier	10.2	-0.4	10	7.69	-0.33	15	C
Twiggs	10.8	-0.3	16	8.12	-0.24	16	C
Lowndes	12.3	0.0	21	8.18	-0.23	17	C

Bleckley	10.5	-0.4	14	8.24	-0.21	18	C
Telfair	8.6	-0.8	7	8.44	-0.17	19	C
Pulaski	10.6	-0.4	15	8.64	-0.13	20	C
Ben Hill	12.3	0.0	22	8.78	-0.10	21	C
Brooks	7.8	-1.0	5	9.39	0.03	22	C
Wilkinson	14.4	0.5	28	9.44	0.04	23	C
Monroe	10.4	-0.4	13	11.03	0.38	24	C
Putnam	13.8	0.4	26	11.51	0.48	25	C
Washington	12.9	0.2	25	12.24	0.63	26	D
Wilcox	16.9	1.1	34	13.23	0.84	27	D
Peach	15.3	0.7	30	13.58	0.91	28	D
Bibb	14.7	0.6	29	13.61	0.92	29	D
Turner	12.4	0.0	23	14.97	1.21	30	F
Tift	12.9	0.2	24	15.46	1.31	31	F
Dooley	11.7	-0.1	20	15.75	1.37	32	F
Hancock	11.3	-0.2	18	16.79	1.59	33	F
Baldwin	17.5	1.2	35	17.25	1.69	34	F
Crisp	15.4	0.7	31	17.25	1.69	35	F
Echols	31.0	4.3	36	17.82	1.81	36	F

^aInfant Mortality Rate is one of the eight medical variables that create the medical index.

^bAll eight medical variable Z-scores were added together.

^cRepresents the Infant Health Risk Score for medical variables ranked from lowest to highest risk county.

Quality of Life Index

The Perinatal Health QOL Index was calculated by summing the Z-scores of the Medical, Lifestyle, and Access Indices, which is shown in Table III. A numeric rank from lowest to highest risk (1 to 207 for census tracts and 1 to 36 for counties) was provided for the respective geographies. The mean and standard deviation was calculated for the Z-score of Medical, Lifestyle, and Access Z-scores column to determine the grading scale, A-B-C-D-F. The resulting grades represent the Infant Health Risk Score for each census tract and county in the perinatal region as determined by the Perinatal Health QOL Index. In this instance, the results show 3 counties with a grade of A, 5 with B, 18 with C, 8 with D, and 2 with a grade of F.

Dominant Clusters

Identify High Risk Areas by Cluster. As noted in the previous section and reflected in Table III, the high and low risk counties were identified. Utilizing the PRIZM cluster system, we tagged these high and low risk counties with the cluster that dominates the specific geographic area. The PRIZM clusters are a lifestyle segmentation system developed by Claritas, Inc. in order to group neighborhoods together that exhibit similar social, demographic, and behavioral characteristics. These neighborhood clusters can be used to identify and locate targets for marketing. In the PRIZM system every U.S. neighborhood/block group is defined according to 62 distinct clusters. (A block group is a smaller division of a census tract, and a census tract is a smaller division of a county.) The Perinatal Region is represented by 34 of the nation's 62 clusters at the block group level, and 29 of the 34 PRIZM clusters can be linked to the region's census tracts. Since census tracts may have several block groups and each block group could represent a different cluster, it was determined that the cluster with the greatest population and/or most "like" clusters would be selected to represent the census tract cluster group.

Three components were combined to determine the five dominant PRIZM clusters for the region. However, the number of clusters chosen for further analysis was not limited to five. The number is very much dictated to by the degree of problem that is encountered, as the data is summed across all clusters. In this instance, the majority of the problems in the region are reflected in the five dominant clusters which are examined further for marketing and prevention strategies. The three components used for determining the five dominant clusters in this analysis were:

- the cluster block group population,
- the cluster rank of the perinatal health variables (births, infant mortality, low birth weight births, and preterm births), and
- the cluster rank of the QOL Indices (medical, lifestyle, access) denoted as the Quality of Life Index.

Block group population. The PRIZM clusters are defined by block groups, smaller divisions of a census tract. To qualify as a top five high risk PRIZM cluster, each cluster in the region must comprise at least 5% of the region's total block group population. The clusters with the highest percent population in the region are Scrub Pine Flats, Norma Rae-ville, Southside City, Shotguns and Pickups, and Grain Belt.

Perinatal health variables. Four medical variables: births, infant mortality, low birth weight births, and preterm births, were selected to determine their impact on perinatal health status in the region by PRIZM cluster. Although these four variables are included in the Medical Index, they are analyzed separately for examining their impact at the cluster level.

The birth rate, infant mortality rate, percent of low birth weight births, and the percent of preterm births was determined by cluster group. For example, the PRIZM cluster Southside City has the highest birth rate (20.1), and the PRIZM cluster Family Scramble has the highest infant mortality rate (24.0). After the rates and percents were determined for each medical variable by PRIZM cluster, the clusters were linked to the

TABLE III
The Z-Score and Integer Ranking of the Perinatal Health QOL Index by County

County	Medical Z-Scores (Sum)	Lifestyle Z-Score (Sum)	Access Z-Scores (Sum)	Medical, Lifestyle, and Access Z-Scores (Sum)	Z-Score of Medical, Lifestyle, and Access Z-Scores ^a	Rank	Grade
Houston	5.1	-12.4	-7.3	-14.5	-2.5	1	A
Jones	5.4	-7.8	-4.5	-6.9	-1.7	2	A
Lowndes	8.2	-7.2	-7.4	-6.5	-1.7	3	A
Cook	6.4	1.0	-7.1	0.3	-0.9	4	B
Irwin	4.9	0.7	-5.2	0.4	-0.9	5	B
Bleckley	8.2	-0.9	-5.0	2.3	-0.7	6	B
Laurens	4.2	-3.3	1.6	2.5	-0.7	7	B
Crawford	6.2	-1.6	-2.0	2.6	-0.7	8	B
Wheeler	1.3	0.8	3.1	5.2	-0.4	9	C
Dodge	4.9	0.6	-0.1	5.4	-0.4	10	C
Peach	13.6	-1.3	-6.7	5.7	-0.4	11	C
Treutlen	1.9	3.1	1.6	6.6	-0.3	12	C
Berrien	4.1	2.9	-0.1	6.9	-0.2	13	C
Montgomery	2.0	-1.7	7.0	7.2	-0.2	14	C
Wilkinson	9.4	-3.8	1.7	7.3	-0.2	15	C

Monroe	11.0	-5.0	1.3	7.4	-0.2	16	C
Ben Hill	8.8	6.2	-6.8	8.2	-0.1	17	C
Pulaski	8.6	-1.6	1.3	8.4	-0.1	18	C
Lanter	7.7	4.8	-3.7	8.8	0.0	19	C
Bibb	13.6	-5.4	1.1	9.3	0.0	20	C
Baldwin	17.2	-4.3	-3.1	9.8	0.1	21	C
Brooks	9.4	0.3	0.5	10.3	0.1	22	C
Washington	12.2	-0.8	-0.7	10.8	0.2	23	C
Tift	15.5	0.9	-5.5	10.9	0.2	24	C
Putnam	11.5	-3.8	3.2	10.9	0.2	25	C
Johnson	5.1	3.7	4.2	13.0	0.4	26	C
Crisp	17.3	2.9	-6.1	14.1	0.5	27	D
Butts	6.5	1.0	7.0	14.6	0.6	28	D
Turner	15.0	3.5	-3.9	14.6	0.6	29	D
Jasper	7.7	3.0	4.3	15.0	0.6	30	D
Twiggs	8.1	4.7	3.6	16.4	0.8	31	D
Wilcox	13.2	2.6	0.8	16.7	0.8	32	D
Telfair	8.4	4.7	7.9	21.0	1.2	33	F
Echols	17.8	-0.7	5.8	22.9	1.4	34	F
Dooley	15.7	7.6	4.4	27.7	1.9	35	F
Hancock	16.8	6.8	13.8	37.4	3.0	36	F

^aRepresents the Infant Health Risk Score for the Perinatal Health QOL Index ranked from lowest to highest risk county.

census tracts for each medical variable by summing the Z-scores of each variable and ranking the sum by highest to lowest risk PRIZM cluster. Cluster rank and percent of total block group population were taken into consideration when choosing the top 5 high-risk clusters. The top five high-risk clusters for selected medical variables listed from highest to lowest risk are Norma Rae-ville, Scrub Pine Flats, Southside City, New Homesteaders, and Grain Belt (Table IV).

Quality of life index. To review, the Perinatal Health QOL Index was developed by combining the 26 variables from the Medical, Lifestyle, and Access Indices. The PRIZM clusters were linked to the census tracts of the QOL Index by summing the Z-scores of the census tracts in the QOL Index and ranking the sum based on risk from highest to lowest by PRIZM cluster. In Table V the Z-scores of the 21 census tracts of Southside City total 22.7, which is the highest Z-score of all the clusters for the QOL Index. Therefore, Southside City ranks the highest for perinatal health risks related to medical, lifestyle, and access variables. Again, cluster rank and percent of total block group population were taken into consideration when choosing the top five high-risk clusters. The top five high-risk clusters for QOL Indices listed from highest to lowest risk are Southside City, Scrub Pine Flats, Grain Belt, Norma Rae-ville, and Shotguns and Pickups (Table IV).

Five Dominant Clusters

The top five high-risk clusters are finalized by adding the rank of each cluster for the percent block group population, selected medical variables, and the QOL Index. Table IV shows how the cluster ranks were added to get the final top five PRIZM clusters for the region. The five dominant clusters that ranked from highest to lowest risk are shown in Table VI. This table highlights the social, economic, and demographics of the five dominant clusters which represent high risk in terms of perinatal health status. Therefore, these clusters were identified as marketing and health promotion targets for the region for impacting on health status of the perinatal population.

RESULTS

Quality of Life Indices

A Infant Health Risk Score was created for each county (36) and census tract (207) by calculating the Z-scores of selected medical, lifestyle, and access variables in order to construct a Perinatal Health QOL Index. Table VII gives a summary of the grade distribution for the indices of the Perinatal Health QOL Index.

Medical, Lifestyle, and Access Indices

Nearly one-third of the counties in the perinatal region received a grade of D or lower for the *Medical Index variables*. Sixty-one census tracts, representing 26% of the perinatal region's population, received grades of D or lower for the Medical Index variables. Geographically, the medical grade results are quite randomly distributed throughout the region (Figure 3). However, pockets of poor medical status, grades of D and F, are clustered and more evident in the northwest urban tracts of Baldwin, Bibb, and Peach counties, and the west-central rural counties of the region.

Lifestyle variables, those that pertain to education, alcohol use, cigarette smoking, socioeconomic status, and health status, reflect the overall behavioral characteristics of the perinatal population. Thus, the Lifestyle Index shows that 13 counties and 64 census tracts, 22% of the region's population, received grades of D or lower. The Lifestyle Index of High Risk by census tract (Figure 4) illustrates that high risk tracts are scattered randomly throughout the region with a concentration of the high risk tracts in the region's south to central regional counties.

Twenty-one percent of the region's population have problems with access to perinatal health care services. About one-third of the counties and 57 census tracts received grades of D or lower for *Access variables* of high risk. Problems with access or tracts that received grades of D or lower are evident around the region's periphery as well as the suburbs of the metropolitan counties such as Bibb, Baldwin, Laurens, and Lowndes (Figure 5). A primary reason for this peripheral pattern of lack

TABLE IV
 PRIZM Cluster Rank for Combined Block Group Population, Medical Variables, and Quality of Life Indices; Perinatal Region 6, Georgia 1994–1999

PRIZM Cluster	% PRIZM Cluster Population by Block Group	Cluster Rank from High to Low Risk			Sum of Ranks	Sum of Combined PRIZM Cluster Rank
		Population	Medical Variables	Quality of Life Index		
Scrub Pine Flats	18.1	1	2	2	5	1
Norma Rae-ville	12.6	2	1	4	7	2
Southside City	5.9	3	3	1	7	3
Grain Belt	5.1	5	5	3	13	4
Shotguns & Pickups	5.5	4	7	6	17	5
Back Country Folks	4.7	6	8	11	25	6
Starter Families New	2.3	15	6	16	37	7
Homesteaders	3.6	8	4	29	41	8
Middle America	2.3	14	13	14	41	9
River City, USA	3.6	9	9	24	42	10
God's Country	3.7	7	11	28	46	11
Blue Highways	2.7	11	25	10	46	12
Sunset City Blues	2.2	16	12	19	47	13

Red, White & Blues	2.5	13	14	21	48	14
Rustic Elders	1.4	23	18	7	48	15
Big Fish, Small Pond	2.8	10	17	22	49	16
Middleburg Managers	2.5	12	10	27	49	17
Big Sky Families	1.7	18	27	9	54	18
Upward Bound	1.8	17	23	17	57	19
Family Scramble	0.6	31	22	5	58	20
Military Quarters	1.6	19	15	25	59	21
New Eco-topia	1.6	20	21	18	59	22
Mines & Mills	0.8	30	24	8	62	23
Agri-Business	1.5	21	29	13	63	24
Country Squires	1.1	25	16	23	64	25
Hard Scrabble	1.1	26	26	12	64	26
Greenbelt Families	1.5	22	28	15	65	27
Towns & Gowns	0.9	29	19	20	68	28
Second City Elite	1.3	24	20	26	70	29
Rural Industria	1.1	27				30
Boomtown Singles	0.9	28				31
Hometown Retired	0.5	32				32
Smalltown	0.3	33				33
Downtown						
Golden Ponds	0.2	34				34

TABLE V
PRIZM Cluster Rank for QOL Index; Perinatal Region, 1994-1999

PRIZM Cluster	Number of Census Tracts Where Cluster is Dominant	QOL Index		Cluster Rank from High to Low Risk	%PRIZM Cluster Population by Block Group
		Z-scores by Census Tract (Sum)			
Southside City	21	22.7		1	5.9
Scrub Pine Flats	45	18.2		2	18.1
Grain Belt	16	8.1		3	5.1
Norma Rae-ville	26	7.7		4	12.6
Family Scramble	1	2.2		5	0.6
Shotguns & Pickups	11	2.0		6	5.5
Rustic Elders	3	1.9		7	1.4
Mines & Mills	1	0.7		8	0.8
Big Sky Families	1	0.3		9	1.7
Blue Highways	2	0.0		10	2.7
Back Country Folks	16	-0.7		11	4.7
Hard Scramble	2	-0.8		12	1.1
Agri-Business	3	-0.9		13	1.5
Middle America	2	-1.1		14	2.3
Greenbelt Families	1	-1.2		15	1.5
Starter Families	5	-1.3		16	2.3

Upward Bound	1	-1.3	17	1.8
New Eco-topia	2	-1.4	18	1.6
Sunset City Blues	4	1.7	19	2.2
Towns & Gowns	3	-1.9	20	0.9
Red, White & Blues	4	-3.7	21	2.5
Big Fish, Small Pond	3	-4.1	22	2.8
Country Squires	2	-4.4	23	1.1
River City, USA	7	-4.5	24	3.6
Military Quarters	3	-5.2	25	1.6
Second City Elite	3	-6.7	26	1.3
Middleburg Managers	6	-7.3	27	2.5
God's Country	6	-7.8	28	3.7
New Homesteaders	7	-7.9	29	3.6
Rural Industria	0			1.1
Boomtown Singles	0			0.9
Hometown Retired	0			0.5
Smalltown Downtown	0			0.3
Golden Ponds	0			0.2
Perinatal Region	207			100.0

TABLE VI
PRIZM Cluster Demographics

Cluster Name	Type	Description	Age Group	Race
Scrub Pine Flats	Rustic Living	Older African-American Farm Families	Under 18, 18-24, 65+	Predominantly Black
Norma Rae-ville	Working Towns	Young Families, Bi-Racial Mill Towns	Under 18, 18-24, 25-34	Predominantly Black
Southside City	2nd City Blues	African-American Service Workers	Under 18, 18-24, 25-34	Predominantly Black
Shotguns & Pickups	Country Families	Rural Blue-Collar Workers & Families	Mixed	Predominantly White
Grain Belt	Heartlanders	Farm Owners & Tenants	Under 18, 55-64, 65+	Predominantly White, High Hispanic, Some Native American

Note: Data from Inforum, © a Division of Claritas, Inc. © 2000.

of access is because the counties contiguous to the region were not evaluated for access to services within the region. It has been suggested to the policy makers that a statistical assessment of access should be conducted so as to overcome this deficiency noted at the regional level.

Quality of Life Index

The Quality of Life Index was calculated by using the Z-score additive model; thereby, combining the three indices (medical, lifestyle, and access). As a result of this analysis, 10 counties and 59 census tracts, 23% of the region's population is identified and is targeted as high-risk perinatal health "hot spots." The overall QOL grades are shown in Figure 6.

Five Dominant Clusters

Selected Medical Variables/Births, IM, LBW, Preterm. As previously mentioned, the top five high-risk clusters for selected medical variables were identified for the region. Listed from highest to lowest risk they are Norma Rae-ville, Scrub Pine Flats, Southside City, New Homesteaders, and Grain Belt. Norma Rae-ville's comprise 13% of the region's population. As seen previously, the total of Norma Rae-ville's Z-scores for birth rate, infant mortality rate, percent of low birth weight births, and percent of preterm births was the highest in the region. For instance, Norma Rae-ville experienced 18.4 infant deaths per 1,000 population for the years 1994–1999. The cluster with the lowest overall score for selected medical variables was Agri-Business, which comprises 2% of the region's population.

Quality of Life Indices. The top five PRIZM clusters for the Quality of Life Indices were previously identified as Southside City, Scrub Pine Flats, Grain Belt, Norma Rae-ville, and Shotguns and Pickups. Sixty-six percent of Southside City's tracts exhibit grades of D and F for the region and 6 of the 21 Southside City tracts received an F for QOL.

TABLE VII
Distribution of Index Grades and Percent of Population by Medical, Lifestyle, Access, and Quality of Life Scores by County and Census Tract; Perinatal Region 6, Georgia, 1994-1999

Grades	MEDICAL				LIFESTYLE				ACCESS				QUALITY OF LIFE			
	Number of Counties	Percent of County Population	Number of Census Tracts	Percent of CT Population	Number of Counties	Percent of County Population	Number of Census Tracts	Percent of CT Population	Number of Counties	Percent of County Population	Number of Census Tracts	Percent of CT Population	Number of Counties	Percent of County Population	Number of Census Tracts	Percent of CT Population
A	5	9.3	30	14.4	3	25.5	23	17.7	5	29.2	17	8.1	3	25.5	17	12.6
B	8	24.7	47	27.0	6	33.1	30	18.2	8	18.8	61	36.3	5	10.7	49	27.4
C	12	26.9	69	32.9	14	24.3	90	41.9	12	38.4	72	34.3	18	50.5	82	36.3
D	4	23.3	28	12.9	10	12.7	50	18.4	7	8.0	32	11.9	6	9.2	48	21.3
F	7	15.8	33	12.8	3	4.4	14	3.8	4	5.6	25	9.4	4	4.1	11	2.4

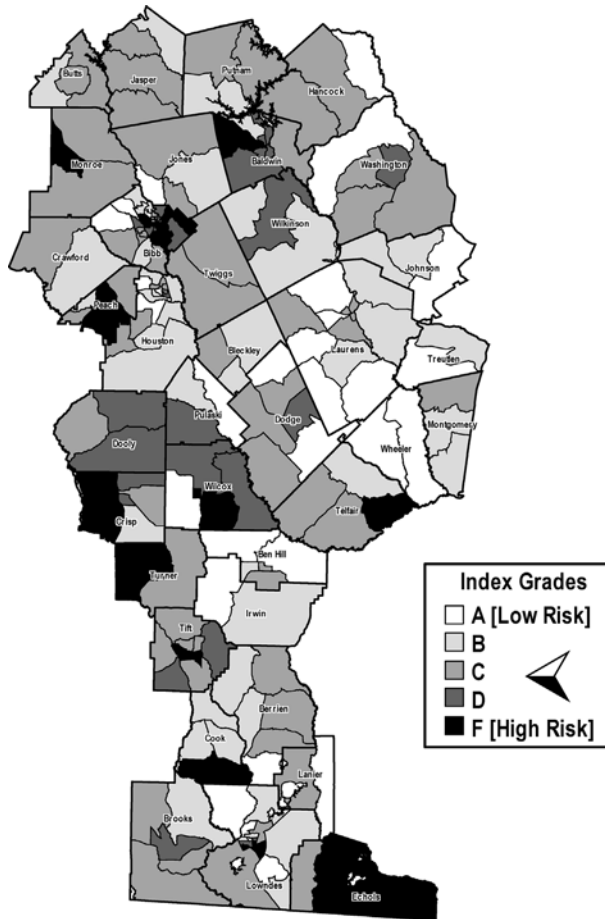


Figure 3. Medical index of high risk by census tract; Perinatal Region 6, Georgia, 1994–1999.

Five Dominant Clusters. The top five high-risk clusters, or five dominant clusters based on the calculated scores and rankings of the Block Group Population, Medical Variables, and Quality of Life Indices, were Scrub Pine Flats, Norma Rae-ville, Southside City, Shotguns and Pickups, and Grain Belt. Aggregated these five dominant clusters of the perinatal region make up 47% of the region’s population and represent 119 census tracts throughout the region. Figure 7 displays the distribution of the clusters in the region. The birth rate, infant mortality rate, percent of low birth weight

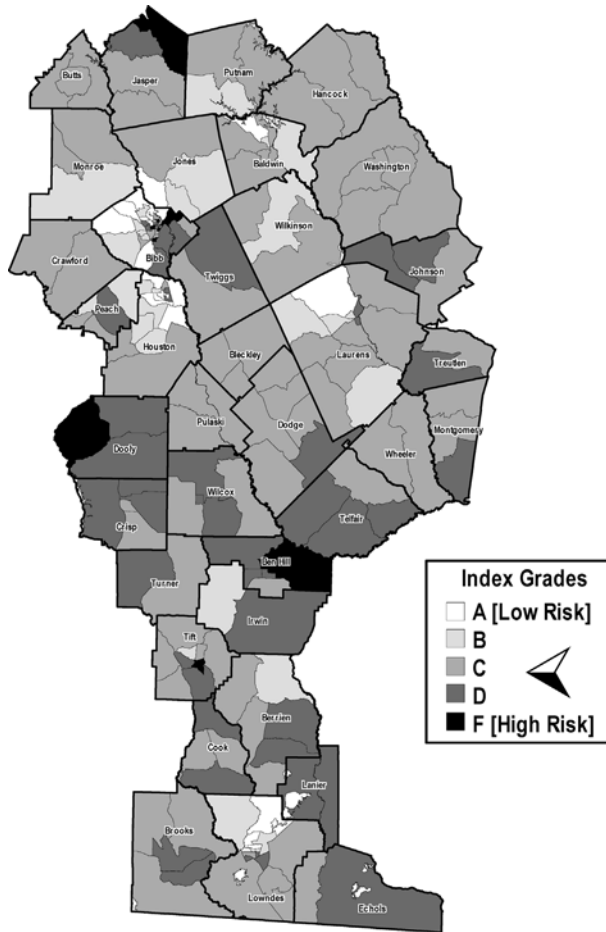


Figure 4. Lifestyle index of high risk by census tract; Perinatal Region 6, Georgia, 1994–1999.

births, and percent of preterm births for the top five high-risk clusters are all higher than the region rates and percents, and these rates and percents are shown in Table VIII.

Marketing/Prevention Strategies

As a result of identifying the five dominant clusters which experience the worst or most significant perinatal health problems, the focus now turns to a method for intervening in the natural history of disease pathway. Clearly the natural

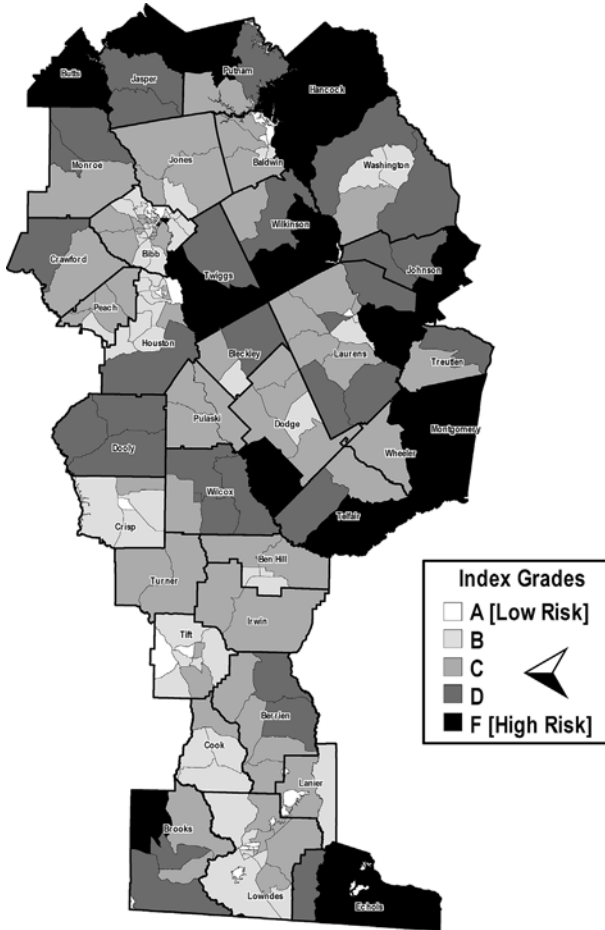


Figure 5. Access index of high risk by census tract; Perinatal Region 6, Georgia, 1994–1999.

history of the perinatal disease process is not well understood and the medical model has been weak in advancing any new causal or behavioral changes to improve outcomes. Marketing strategies focused on media usage and consumer behavior patterns among the previously identified top five high-risk clusters was thus implemented. The PRIZM clusters were geographically linked with the high risk QOL geography and population counts for the estimated utilization of media usage and consumer behavior patterns was identified

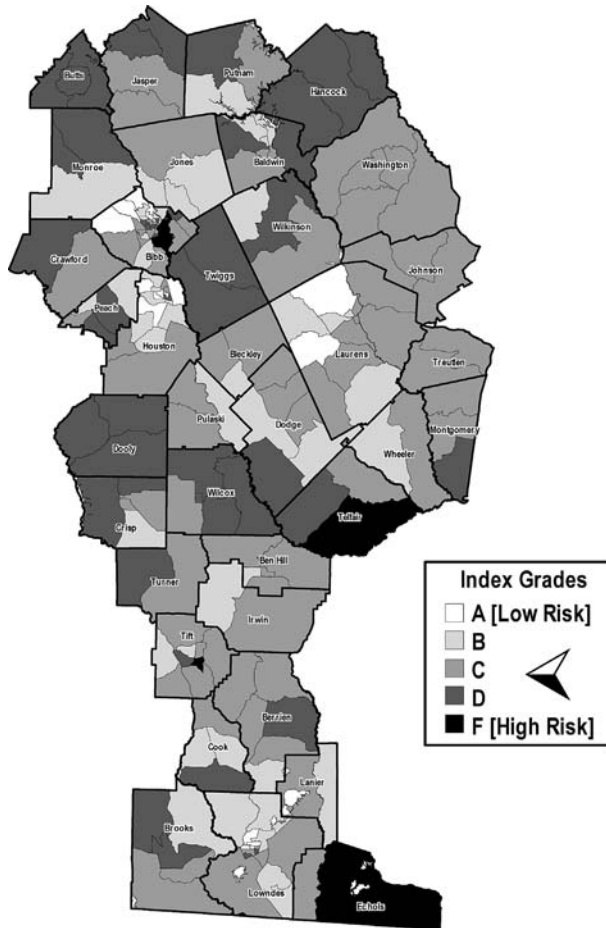


Figure 6. QOL index of high risk by census tract; Perinatal Region 6, Georgia, 1994–1999.

(Inforum/Claritas). The media and consumer categories are estimated based on a percent usage by the U.S. Therefore, every cluster media and consumer expenditure pattern of percent usage can be compared with the corresponding percents for the nation.

The categories for media usage are television, radio, and magazines, and the categories for consumer behavior are restaurants, food items, shopping locations, and other. The overall media usage and consumer behavior patterns for each high-risk

cluster were summarized several different ways to ensure the focus of unique intervention marketing efforts.

Media Usage and Consumer Behavior Patterns – Combined. All available media usage and consumer behavior topics that were practiced by the top five high-risk clusters were combined and ranked. In order to be included, all five clusters and at least 25% of the cluster population must participate in the media or consumer topic. Seventy-five percent of the top five high-risk clusters watch Turner Broadcasting System (TBS), which is 55% higher than the national average that watch TBS. Likewise, 94% eat at fast food restaurants, 6% more than the nation.

Media Usage and Consumer Behavior Patterns – Unique (>25% Population). Unique media usage and consumer behavior patterns detected among the top five high-risk clusters were calculated. The purpose of this analysis was to determine which topics were unique to each cluster. The media usage and consumer behavior categories must have been observed in only one or two clusters and used by at least 25% of the cluster population to be included in the marketing and prevention strategy. For example, 47% of the Grain Belt movie watchers prefer the STARZ cable network. The other four clusters do not watch movies on this network, or they watch this network less than 25% of the time. Table IX illustrates the unique media and consumer topics viewed and/or practiced by the top five high-risk clusters.

Media Usage and Consumer Behavior Patterns – Unique (>125 Propensity). Propensity is the percent above the national use rate for each of the topics considered where the national use rate is set to equal 100% or 100 propensity. For instance, a 125 propensity score is a topic usage that is 25% greater than the U.S., or the topic is 1.25 times more likely to be used than the U.S. The purpose for this type of analysis was to identify media and consumer topics used by the clusters that were 25% higher than the national use rate. Unique media usage

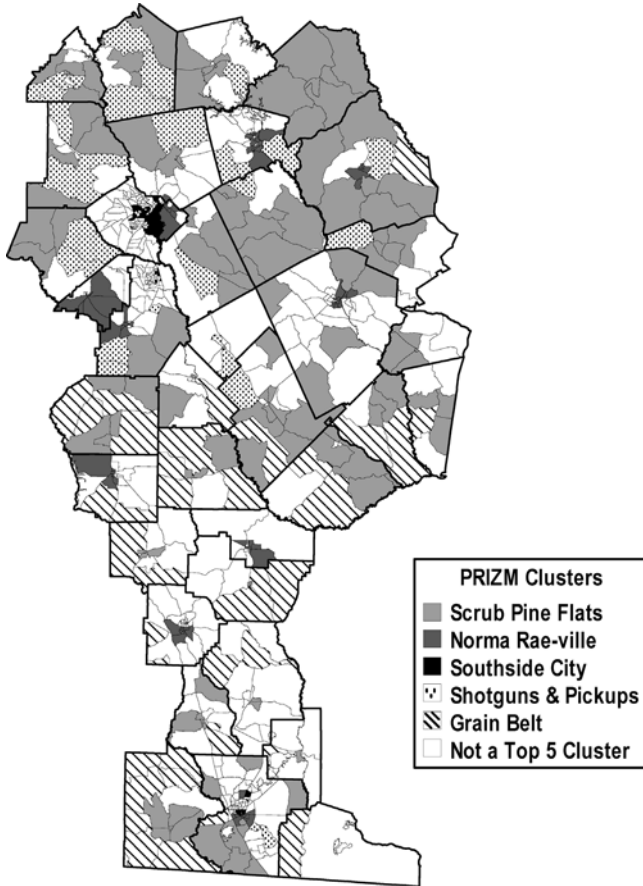


Figure 7. Top five high-risk PRIZM clusters; Perinatal Region 6, Georgia, 1994–1999.

and consumer behavior patterns detected among the top five high-risk clusters in which there is greater than a 125% propensity for the cluster were identified. The media usage or consumer behavior pattern must have only been observed in one cluster to be included in this analysis. An example of propensity usage patterns among the clusters is provided in Table IX. For example, Shotguns and Pickups are 1.57 times more likely to watch the Daytona 500 than the U.S. Twelve percent of the nation, compared to 157% of Shotguns and Pickups, watch the Daytona 500, which airs once a year.

A Community Application-Targeting the High Risk

County Analysis. The Perinatal Health QOL Model components must be applied to a geographic area to determine the appropriate interventions and implementation strategies. A detailed health status summary for every county in the region was provided by block group and census tract. Figure 8, provides an example that illustrates the following:

- shades the location of the top five high-risk clusters,
- plots the location of the infant deaths by block group,
- displays a table for the QOL Index grades by census tract, giving a grade for all categories Medical, Lifestyle, Access and QOL, and
- provides reference data such as city boundaries, interstates, and highways to assist with further assessment of the area.

It is important to note that on the map, the reference data boundaries are layered above the census tracts and block groups. For example, some census tract boundaries may be “hidden” due to the U.S. highway boundaries.

The idea is that the community application can be approached in several different ways, depending on the clusters involved, infant deaths by block group, and QOL Index grades by census tract.

Number of Infant Deaths. The infant deaths from 1994 to 1999 were geocoded to each block group in the Perinatal Region. Geocoding is the assignment of spatial coordinates based on a given street address, county, census tract, block group, or zip code so that the location can be referenced in the map software and displayed on a map. The symbols on the map represent 1 infant death, 2 to 3 infant deaths, and greater than 3 infant deaths. The numbers on the map represent the census tract and block group numbers. For example, 1-1 refers to census tract 1, block group 1, and 1-2 refers to census tract 1, block group 2. To estimate the number of infant deaths by census tract, simply add the number of deaths for each block group within the census tract. Remember to consider the population of the

TABLE IX
 Example of Unique Media Usage and Consumer Behavior for PRIZM Cluster: Norma Rae-Ville

Pattern (U.S. Average %)	Media Usage		Consumer Behavior	
	Percent Usage (>25%)	Propensity (>125)	Pattern (U.S. Average %)	Percent Usage (>25 %) Propensity (>125)
News Magazines	35		Attend Theatre/Concerts	29
Net Aud (24.3%)			Own 35mm Camera (26.6%)	28
Special Appeal	31		Purch Athlct	33
Mags Net Aud (26.3%)		156	Shoes-Nike (23.1%)	
Computer Mags			Shop at CVS (19.1%)	33
Net Aud (4.2%)		159	Use Cap'n Crunch (17.0%)	33
Elle (1.3%)		138	Drink Diet Coke (6.8%)	134
Entertainment Weekly (3.5%)		153	Drink Diet Pepsi	135
Newsweek (7.0%)		133	Drink Other Diet	125
Time (9.5%)			Soft Drinks (21.1%)	
			Eat at Del Taco (2.5%)	189
			Exercise at YMCA/YWCA (2.7%)	262

census tract when reviewing infant deaths because a high number of deaths may only reflect a high number of births and not a high risk area.

There are two ways of examining the impact of the infant deaths. First, note the infant deaths by block group and census tract on the map, and compare these tracts in the table to identify if the same tracts are high risk (grades D and F). Second, note the infant deaths by block group and census tract on the map in relationship to the PRIZM clusters by block group or census tract. This last option is explained in greater detail under the header, Identify the Clusters.

For instance, Wilcox County has four census tracts and seven block groups. The county has experienced infant deaths in seven of the eight block groups and in all four census tracts. Of these census tracts, tracts 1, 2, and 4 are high-risk for Medical, Lifestyle, and QOL indicators in the Perinatal Health QOL Index, which can be viewed in the table on the map.

High Risk Census Tracts – Grades D and F. A summary for the perinatal health status index grades (Medical, Lifestyle, Access, and QOL) is provided for each county in a table on the map. Every census tract in the region was given a grade for Medical, Lifestyle, and Access, and QOL indicators. The grades range from A to F or from low to high risk, respectively. Grades A and B are low risk (good), grade C is medium risk (fair), and grades D and F are high risk (poor). The numbers in the table represent the census tracts in the county. Census tracts that score in the high-risk category should be targeted for health promotion and disease prevention strategies.

There are two ways of assessing the information in the QOL Index table. First, look at the high-risk tracts in the table (grades D and F) compare these tracts to the tracts on the map to see if the same tracts display high numbers of infant deaths. Second, look at the high-risk tracts in the table (grades D and F), in relationship to the PRIZM clusters by block group or census tract.

Wilcox County has four census tracts and seven block groups. Tracts 1, 2, and 4 have been rated as high-risk tracts because they scored grades of D and F for Medical, Lifestyle,

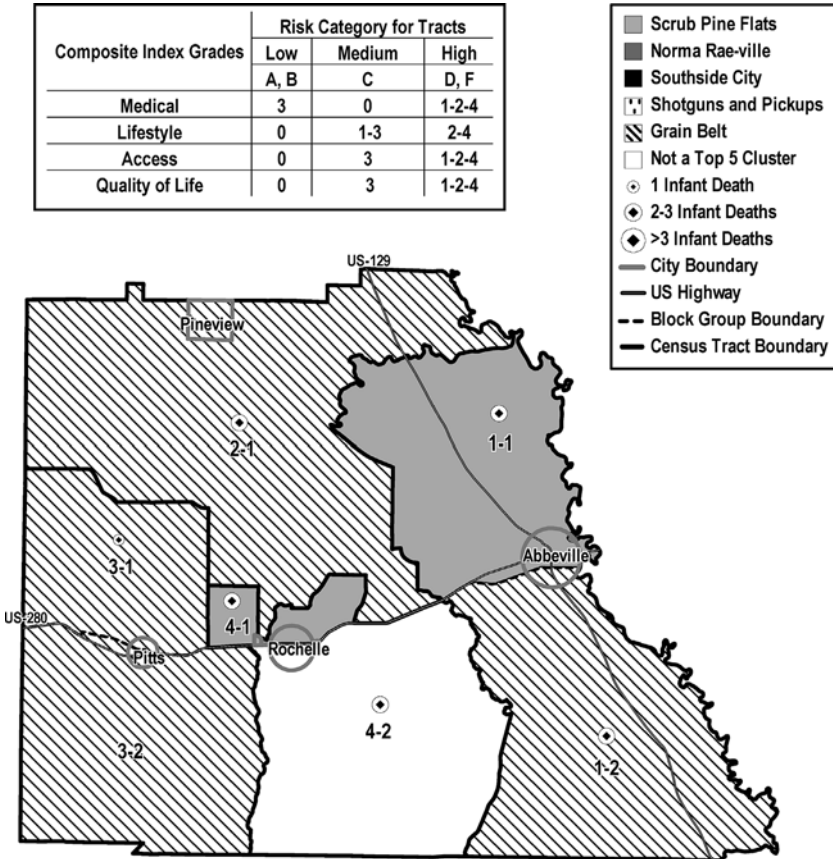


Figure 8. Perinatal health status assessment; Wilcox County, Public Health District 5-1, Perinatal Region 6, Georgia, 1994-1999.

Access, and QOL indicators in the Perinatal Health QOL Index. All of these tracts should be examined because they all experienced infant deaths during the six-year period, 1994-1999.

Identify the Clusters. Utilizing the high risk areas defined above, the cluster groups are tagged to these areas. The PRIZM clusters are identified so as to decide on the appropriate marketing strategies for an area such as the region, district, census tract, or block group. After the steps have been taken to decide which tracts and/or block groups should be targeted, by looking at the number of infant deaths and high-risk tracts, the

tracts and block groups must be linked to the clusters. If the block groups are shaded that means that it can be linked to a high-risk cluster, Scrub Pine Flats, Norma Rae-ville, Southside City, Shotguns and Pickups, or Grain Belt. If a block group is shaded white, it is not a top five high-risk cluster for the region, and should be investigated if necessary; however, the yield will be low because the remaining clusters represent a very small percentage of the problem, given the magnitude of the issue in the entire region. This analysis has been designed to create a method which is targeted and positioned to yield a high return on intervention and further conserve resources for maximum impact.

Six of the seven block groups in Wilcox county are defined by two high-risk clusters, Scrub Pine Flats, shaded in dark grey and Grain Belt, shaded in light grey. Only one block group, 4-2, is defined by a different PRIZM cluster. Since the majority of the county is comprised of the two clusters then the marketing and prevention model should be based on the media usage and consumer behavior topics exhibited by the two cluster groups Scrub Pine Flats and Grain Belt.

CONCLUSION

The Perinatal HR-QOL Model enabled the assessment of the perinatal health status in the region. This study encompassed a broad range of indicators that determined infant health status directly and indirectly related to the medical health of the infant and mother, socioeconomic and lifestyle indicators, as well as issues associated with access to care. These variables were combined to create a holistic approach to defining perinatal health.

Unlike other studies, the Perinatal HR-QOL Model can be compared with other geographical units such as the national, state, and local levels. The local areas such as the counties, census tracts, and block groups, were identified as high, medium, or low risk areas for overall QOL, as well as medical, lifestyle, and access indicators. The result of this analysis created an Infant Health Risk Score that was assigned to every county and census tract in the region.

Using the data from the Perinatal HR-QOL Model, the local areas that were identified as high-risk were linked to a marketing tool, PRIZM clusters. Five of the 62 PRIZM cluster groups were selected to represent the target groups of the Perinatal Region. The top five high-risk PRIZM cluster selections were based on percent population, perinatal health variables, and the QOL Index.

The PRIZM cluster marketing system is able to identify various demographic and lifestyle variables that separates one group of consumers from another. The clusters within a target group show similarities in behavior and in fundamental lifestyle characteristics such as media habits and product usage. In other words the high-risk census tracts can be linked to consumer-specific data such as to what they watch, listen to, read, and buy as well as where they eat and shop. This specific marketing approach is needed to determine the focus of health promotion and disease prevention strategies for the region.

Combining the high-risk groups with specific marketing information creates an ideal situation for identifying consumer targets and developing interventions using a marketing-message model. The goal of formative research in public health is to understand the target audience for behavior change (Siegel and Doner, 1998). The Perinatal HR-QOL Model uses the PRIZM cluster marketing data to understand the behaviors and characteristics of the people living in the high-risk areas so that creative public health messages and interventions based on prevention and behavioral change can be framed to address social changes that will improve perinatal health status.

The Perinatal Planning Committee for the region is developing strategies to implement the media usage and consumer behavior marketing information to focus their prevention efforts to the high-risk areas in the region. The results of Perinatal HR-QOL Model will be followed by additional research to determine the success of this proposed small area analysis.

The Perinatal HR-QOL Model is an approach to improve perinatal health that is much different than the traditional medical model of treatment. By encompassing a number of

complex characteristics, such as biological, social, and psychological factors, the Perinatal HR-QOL Model is relative to the biopsycosocial model of health (Pol and Thomas, 1992). The perinatal model is broad in its holistic approach to improve perinatal health status but narrow in its focus of creating health promotion themes to target groups in the region (Dever, 1976, 1991). The Perinatal HR-QOL Model proves to have significant potential to improve the planning and focus of prevention efforts when linking marketing business intervention methods with a perinatal epidemiological health needs assessment.

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QUALITY OF LIFE IN HONG KONG: PAST ACCOMPLISHMENTS AND FUTURE PROSPECTS^{1,2}

(Accepted 24 August 2004)

ABSTRACT. Following several decades of rapid economic expansion, development in Hong Kong has arrived at a new crossroads. The pace of economic growth is no longer as rapid as during earlier decades, competition with other East Asian societies has grown more acute and many of the territory's recurrent, sometimes hidden, social problems appear to be undermining selected aspects of Hong Kong's quality of life. And Hong Kong's political tensions with the central government in Beijing have become more confrontational since its return in 1997 to Chinese political sovereignty. This article: (1) summarizes the current state of social development in Hong Kong; (2) identifies the major social, political and economic challenges that confront Hong Kong at the beginning of a new development decade; (3) compares selected aspects of Hong Kong's social development with that of other East Asian societies; and (4) suggests a variety of policy options that are available to leaders in Hong Kong's for promoting a more balanced approach to social and economic development. The article also illustrates the use of social reports and social reporting in advancing development assessment and planning.

KEY WORDS: development, Hong Kong, social development, social indicators, social reporting

INTRODUCTION

Hong Kong SAR³ is an international metropolis with a population of nearly seven million people. Since at least the mid-1960s, Hong Kong has been regarded as one of East Asia's major economic centers – a so-called small or mini “dragon”. Since the 1980s, Hong Kong also has developed into a major trading and financial center for the world-as-a-whole. Today, with a per

capita income of approximately US\$ 27 900, Hong Kong enjoys a level of affluence that places the SAR among the most prosperous societies worldwide (UNDP, 2004).

However, Hong Kong has arrived at a new crossroads. Following decades of rapid expansion, the pace of development in Hong Kong has slowed measurably (Chan and So, 2002; Editors, 2004g). Beginning in the mid-1990s, and along with many other East Asian economies (Editors, 2002b, c, d, e, 2003a; ESCAP, 2003), Hong Kong experienced a series of economic and financial “shocks” that have contributed to jobs being more difficult to secure and pay comparatively less than in the recent past. The cost of housing, food, health care and other basic necessities consume a larger share of total household earnings for which people must work longer hours. Meaningful savings are more difficult for all but a privileged few. And the SAR’s problems with crime, homelessness and the environment have proven more intractable than anticipated. In addition, “new” problems in the areas of family violence and drug abuse have surfaced as have issues associated with youth suicide and sex and drug tourism from Hong Kong into Mainland China. Rapid increases in population aging also are posing special challenges for Hong Kong’s already heavily pressed income security system (UNDP, 2003; World Bank, 2003).

And Hong Kong’s political tensions with the central government in Beijing have grown more serious, certainly more confrontational, each year since the return in 1997 of Hong Kong to Chinese political sovereignty (Amnesty International, 2002a, b; Editors, 2003b, 2004a, d, f; Freedom House, 2001, 2003; Horlemann, 2003; Lee, 2001; Spaeth, 2004; Windsor and Nelson, 2002).

The Need For A Social Report

By early 1999 recognition existed in Hong Kong of the need to conduct a comprehensive assessment of the territory’s rapidly changing social conditions. The assessment was envisioned as serving two purposes: (1) to provide Hong Kong with a comprehensive picture of the nature of the major social trends

taking place within the territory; and (2) to provide a baseline against which future development in the SAR could be assessed. A third purpose was the creation of an analytical tool for use in comparing Hong Kong's development patterns with those of other small but economically well-off societies.

With the above purposes in mind, the Hong Kong Council of Social Service (hereafter "HKCSS") invited this author to undertake work on the development of Hong Kong's first comprehensive *Social Report*. The goals associated with the effort included:

1. the creation of an analytical tool unique to Hong Kong for use in assessing the SAR's changing social, political and economic needs over time;
2. an analysis of Hong Kong's positive and negative development trends for the 19-year period 1981–2000 (HKCSS, 2000);
3. an assessment of the current social status of Hong Kong's "historically vulnerable population groups", i.e., women, the aged, children, youth, and low-income households (HKCSS, 2000);
4. an assessment of Hong Kong's social development patterns vis-à-vis those of comparable societies both within and outside East Asia (Estes, 2005; HKCSS, 2000); and,
5. with others in Hong Kong, to initiate a process of working toward more balanced social and economic development (Estes, 2002).⁴

RESEARCH METHODS

The findings summarized in this paper involved the completion of a large number of research tasks over an 18-month period: (1) the conceptualization of "social development" in the context of a small, but well-off, East Asian society; (2) the creation of an analytical tool for use in measuring changes in Hong Kong's social development over time; (3) data collection; (4) testing of the preliminary model for development assessment; and (5) refinements to and re-testing of the revised model. Once tested, the revised model of social development – referred to as the *Social Development Index* (SDI) – was used to conduct

an analysis of Hong Kong's development trends for the period 1981–2000. For reasons of data available, however, particular attention in the analysis was given to Hong Kong's development trends for the period 1986 to 2000 (HKCSS, 2000).⁵

Time Frame

The time periods covered by this analysis coincide with four of Hong Kong's five-year censuses conducted in 1981, 1986, 1991, and 1996. Selected data also were available for 2000 and, to the extent reasonable, those data also were included in the analysis (HKCSD, 2002).

Levels of Analysis

Hong Kong's social development trends were examined at four levels of analysis: (1) for Hong Kong society-as-a-whole; (2) for each of 14 sectors of development included in the SDI; (3) for each of five "historically vulnerable" population groups of special concern to the HKCSS; and (4) for each of the five time periods indicated above.

Data Sources

Most of the data used in this analysis were obtained from either the Hong Kong Census and Statistics Department or other governmental bodies in Hong Kong. Data also were obtained from non-governmental organizations in Hong Kong that monitor specialized aspects of the SAR's development, including environmental groups, human services agencies, human rights groups and selected other "civil society" organizations. Comparative data for societies other than Hong Kong were obtained from the United Nations Development Programme (1999, 2003, 2004), the World Bank (2002a, 2002b, 2003), the World Health Organization (2003) as well as from selected international non-governmental organizations that monitor highly specialized conditions at the global level, e.g., Amnesty International (2002a), Freedom House (2001, 2003),

Transparency International (2003) and others. In all, time-series data were collected for approximately 400 social, political and economic indicators.

Study Limitations

The present study is characterized by a number of limitations: (1) the bulk of the data used in the present analysis were derived from public sources; (2) due to the absence of reliable data sources no objective assessments could be made of changes over time in Hong Kong's "Political Participation" and "Rule of Law" sectors; and (3) panel data corresponding to the study's five time periods could not be identified for people's self assessments of changes over time in their subjective quality of life. Detailed data also were not available, at least at the outset of the study, concerning selected historically vulnerable population groups of special interest to the investigator and the HKCSS, i.e., persons with serious physical and emotional disabilities and Hong Kong's population of chronically impoverished low-income households (which include many children and youth as well as elderly).

The absence of quality time-series data in the above areas suggest the need in Hong Kong for a fuller range of data collection and dissemination organizations. Certainly, Hong Kong's universities can be expected to undertake time-series analysis of a broad range of social development matters that may prove difficult for politically-controlled bodies to initiate (e.g., political participation, rule of law, transparency of judicial decisions, transparency in the appointment of candidates to public oversight and advisories bodies). Hong Kong's extensive network of civil society organizations also could be expected to contribute more meaningfully to Hong Kong's data needs, especially in those areas in which they have a special interest (e.g., environmental protection, strength of civil society, advocacy for the needs of special population groups). To be useful for development planning, though, all such data must: (1) satisfy at least the minimum requirements of scientific validity and reliability; (2) be collected over the long-term so

that the implications of trends, patterns and changes over time can be assessed; and (3) be available to the public. Data that assess development outcomes and performances also are to be preferred over the voluminous amount of input and process data that currently are generated by the majority of Hong Kong's data collection bodies.

SOCIAL DEVELOPMENT: ITS MEANING AND MEASUREMENT IN HONG KONG

The major tool used to assess Hong Kong's social development changes over time was the *Social Development Index – 2002* (hereafter “SDI-2002”). The SDI-2002 is unique to Hong Kong and was developed through a collaborative process between the author, senior staff members of the HKCSS, and members of the project's local Panel of Experts. The major elements included in the SDI-2002 emphasize three discrete “domains” of social life in Hong Kong: (a) Hong Kong's *collective* memory and experience (e.g., history, tradition, values and norms); (b) Hong Kong's contemporary social, political, economic and environmental realities (e.g., socio-political situation, economic situation, environmental constraints); and (c) the basic needs and higher level aspirations of individual residents of Hong Kong and the SAR's extensive network of social collectivities (e.g., ranging from the satisfaction of basic physical and security needs to psychologically more complex “self-actualization” needs).

Consistent with the model's conceptual approach, the SDI-2002's fourteen subindexes were clustered around five domains of development activity: (1) *Contextual* subindexes ($N = 3$), e.g., *Strength of Civil Society*, *Political Participation* and *Internationalization*; (2) the *Economic* subindex ($N = 1$); (3) the *Environmental* subindex ($N = 1$); (4) *Cultural-Scientific* subindexes ($N = 3$), i.e., the *Arts & Entertainment*, *Sports & Recreation* and *Science & Technology* subindexes; and (5) *Human Resource Development* subindexes ($N = 6$): *Education*, *Health*, *Personal Safety*, *Housing*, *Crime & Public Safety*, and *Family Solidarity*. A fuller discussion of both the model and the pro-

cesses that led to its development have been summarized elsewhere (Estes, 2002, 2005; HKCSS, 2002).

THE SOCIAL DEVELOPMENT INDEX-2000 (SDI-2002)

Table I identifies the 14 subindexes and 47 indicators used to operationalize the SDI-2002. The criteria used to select these indicators included face and construct validity, reliability, representativeness, accuracy, timeliness, availability and, when possible, comparability with social measures used in other international and comparative analyses.

An additional 31 indicators were used to create supplemental indexes that measured social development trends for five of Hong Kong's most socially vulnerable population groups (Table II), i.e., *children* ($N = 7$), *youth* ($N = 7$), *the elderly* ($N = 7$), *women* ($N = 5$), and *low-income households* ($N = 5$). Though complementary to the SDI-2002, these population-specific indexes are not part of the SDI-2002 indicator system and, therefore, time-series performances on the population subindexes are not included in composite SDI-2002 scores. The project's remaining 320 indicators were placed in a social indicator "data bank" for future use (HKCSS, 2000).

Measuring Hong Kong's Social Progress

Changes over time in Hong Kong's social development were assessed using: (1) cross-sectional analyses of the *state* of Hong Kong's development at each of five time intervals – 1981, 1986, 1991, 1996 and 2000 (SDI-2002); and (2) the *pace* of Hong Kong's social development between 1986 and 2000 (T-2000).

The statistical procedures used to compute SDI-2002 scores were comparable to those used by the author in other analysis of global (Estes, 1988, 1998, 2006) and regional social development (Estes, 1996, 1999b, 2004). Briefly, subindex and composite SDI-2002 scores were computed using a system of statistical weights derived from some 50 members of the project's local Panel of Experts, each of whom is a specialist in at least one SDI-2002 sector (e.g., health, education, welfare,

TABLE I
 Social Indicators Used to Form the SDI-2002 By Development Sector ($N = 14$ Sectors, 47 Indicators)

Subindex	Indicators
Contextual Subindexes	
Strength of Civil Society Subindex ($N = 4$)	<ul style="list-style-type: none"> • Number of charitable institutions & trusts qualifying for tax exemption (+)* • Private charitable donations as percentage of Gross Domestic Product (+) • Ratio of private charitable donations to government subventions (+) • Percentage of work force affiliated with trade unions (+)
Political Participation Subindex ($N = 3$)	<ul style="list-style-type: none"> • Turnout rate in most recent District Boards/Councils elections (+) • Ratio of District Boards/Councils candidates to District Boards/Councils offices (+) • Percentage of District Board candidates with political party affiliations (+)
Internationalization Subindex ($N = 3$)	<ul style="list-style-type: none"> • Number of countries to which residents of Hong Kong can travel without visa (+) • Number of registered companies incorporated outside Hong Kong (+) • Number of International Conferences held in Hong Kong (+)

Economic Subindex

Economic Subindex ($N = 3$)

- Per capita Gross Domestic Product at constant 1990 market prices (+)
- Gross International reserves (months of import coverage) (+)
- Percentage of total household income earned by the bottom 50% of households (+)

Environmental Subindex

Environmental Quality Subindex ($N = 4$)

- Percentage of gazetted beaches ranked as poor/very poor (-)
- Per capita square meters of public open space (+)
- Per capita cubic meters of annual fresh water consumption by domestic sector (-)
- Percentage of municipal solid waste recycled (+)

Cultural-Scientific Subindexes

Arts & Entertainment Subindex ($N = 4$)

- Number of buildings and archaeological sites declared as monuments (+)
 - Number of films produced locally (+)
 - Number of books and magazines first published in Hong Kong annually (+)
 - Attendance at museums and cultural venues per 100 000 population (+)
-

TABLE I
Continued

Subindex	Indicators
Sports & Recreation Subindex ($N = 3$)	<ul style="list-style-type: none"> • Number of public sporting facilities (+) • Average utilization rate of public sports facilities (+) • Size of delegation participating in major games (+)
Science & Technology Subindex ($N = 2$)	<ul style="list-style-type: none"> • Number of patents granted to Hong Kong entities (residents and non-residents) (+) • Number of scientific publications in refereed publications (+)
Human Resource Development Subindexes Education Subindex ($N = 3$)	<ul style="list-style-type: none"> • Percentage of persons aged 20 and over with upper secondary educational attainment (+) • Percentage of persons aged 15 and over with tertiary education attainment (+) • Number of adults registered in continuing education courses per 100 000 population aged 15 and over (+) • Average life expectation at birth (+) • Infant mortality rate per 1000 live born (-) • Tuberculosis cases per 100 000 population (-)
Health Subindex ($N = 6$)	<ul style="list-style-type: none"> • Number of adults smoking per 100 000 population aged 20 and over (-) • Number of deaths from coronary heart disease per 100 000 population (-) • Adult suicides per 100 000 population aged 20 and over (-)

Personal Safety Subindex ($N = 3$)

- Number of reported food poisoning cases per 100 000 population (-)
- Number of occupational fatalities per 100 000 workers (-)
- Number of traffic fatalities per 100 000 population (-)

Housing Subindex ($N = 2$)

- Percentage of expenditure on housing as share of total household expenditure (-)
- Number of waiting list applicants for Housing Authority rental flats (-)

Crime & Public Safety Subindex ($N = 4$)

- Number of reported violent crimes per 100 000 Population (-)
- Number of reported non-violent crimes per 100 000 population (-)
- Percentage of population reporting themselves to be victims of violent crimes in the Victimization Survey (-)
- Number of corruption crime convictions per 100 000 population (-)
- Marriages per 100 000 persons aged 15 and over (+)
- Divorces as percentage of marriages (-)
- Reported domestic violence cases per 100 000 households (-)

Family Solidarity Subindex ($N = 3$)

* Plus (+) and minus (-) signs are used to indicate the directional relationship of each indicator to social development, i.e., a higher number of "charitable institutions and trusts qualifying for tax exemption" is conceptualized as a contributing positively to Hong Kong's *Strength of the Civil Society* which, in turn, is judged to contribute more favorably to higher levels of social development.

TABLE II
 Social Indicators Used to Form the "Historically Vulnerable Population" Subindexes ($N = 5$ Subindexes, 31 Indicators)

Subindex	Indicators
Women's Status Subindex ($N = 5$)	<ul style="list-style-type: none"> ● Percentage of women in low-income households (-) ● Married women labor force participation rate (+) ● Median women's wages as a percentage of median men's wages (+) ● Percentage of female administrators and managers (+) ● Percentage of District Boards/Councils positions occupied by women (+)
Low Income Subindex ($N = 5$)	<ul style="list-style-type: none"> ● Number of persons in low-income households per 100 000 population (-) ● Percentage of household expenditure on housing and food for low-income households (-) ● Unemployment rate in low income households (-) ● Real wage index of wage workers (+) ● Homeless persons per 100 000 population (-)
Child Status Subindex ($N = 7$)	<ul style="list-style-type: none"> ● Percentage of children aged 0-14 in low-income households (-) ● Percentage of children living in single parent households (-) ● Under age 5 child mortality per 100 000 population aged 0-4 (-) ● Children (aged 2-6) enrolled in kindergarten or child care centers per 100 000 children aged 2-6 (+)

- Child abuse cases per 100 000 population aged 0–17 (–)
- Percentage of children fully immunized against diphtheria, pertussis and tetanus (+)
- Number of children aged 7–15 arrested per 100 000 (–)
- Percentage of youth aged 15–19 in low-income households (–)
- Percentage of youth aged 15–19 attaining S4 or above (+)
- Percentage of persons aged 15–24 studying full-time courses at tertiary education (+)
- Youth unemployment rate (–)
- Number of youth aged 16–20 arrested for violent crimes per 100 000 population aged 16–20 (–)
- Prevalence of drug use among persons aged 15–19 per 100 000 population aged 15–19 (–)
- Youth suicide rate (–)

Youth Status Subindex ($N = 7$)

- Percentage of persons aged 65 and over in low-income households (–)
- Years of life expectation at age 65 (+)
- Percentage of elderly with lower secondary educational attainment (+)
- Turnout rate of elderly voting in most recent District Board/council elections (+)
- Percentage of elderly as members of Social Centre or Multi-services Centre for the Elderly (+)
- Percentage of elderly aged 65 and over living alone (–)
- Elderly suicide rate (–)

Elderly Status Subindex ($N = 7$)

sports & recreation). These local specialists worked with the author in identifying appropriate statistical weights for each indicator included on the SDI-2002 and, in turn, for each of the SDI-2002's 14 subindexes.⁶ The resulting statistical weights were used in two ways: (1) in assigning item weights to indicator raw score values *prior to their inclusion* in subindex scores; and (2) in assigning weights to each subindex *prior to its inclusion* in the composite SDI-2002 scores.

Social development *trend analysis scores* are identified in this paper as "T-2000" scores (Figures 1–3). The methodology used to compute these scores was developed jointly by Estes and Guilfoyle and, in essence, contrast Hong Kong's social development performance in 2000 with its performance during the preceding 10-year period, i.e., 1986–1996 (HKCSS, 2000). The resulting "z-scores" (referred to here as "trend" or "T-2000" scores) provide an estimate of the *pace* at which changes in development occurred *over time* for each of the SDI's 14 subindexes. Independently derived T-2000 scores also were used to analyze changes *over time* in the social development profiles of each of the study's five historically vulnerable population groups.

FINDINGS

SDI-2002: General Findings

The study's major trend findings are summarized in Figure 1 which reports standardized *Social Development Index* (SDI-2002) scores for the study's five time periods for which 1991 was used as the baseline year against which earlier and later changes in social development are compared (1991 = 100).

The data reported in Figure 1 confirm that substantial social progress occurred in Hong Kong between 1981 and 2000, i.e., a net gain of more than 87% in SDI scores over the 19-year period, i.e., from a low of 75 in 1981 to a high of 140 in 2000. These gains were steady and significant, albeit the magnitude of the gains varied for each time period.

Overall, Hong Kong's periods of most rapid social progress occurred between 1981 and 1986 (+23%) and 1991 and 1996

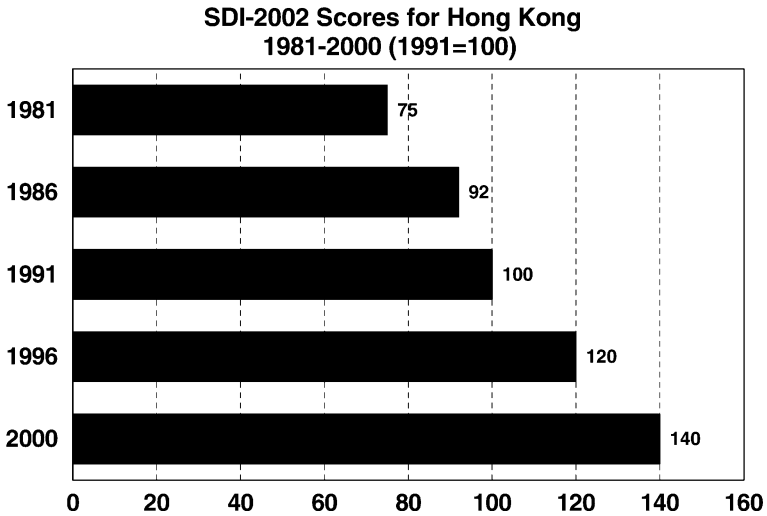


Figure 1. SDI-2002 scores for Hong Kong 1981–2000 (1991 = 100).

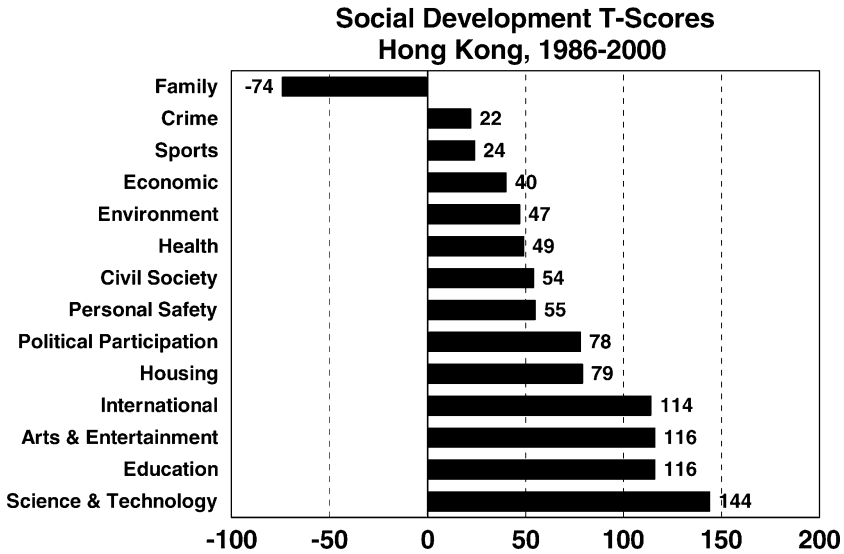


Figure 2. Social developments T-scores for Hong Kong, 1986–2000.

(+20%). Significant net social improvements also occurred for Hong Kong between 1996 and 2000 (+17%) and, possibly, the rate of improvement may be even more substantial when social development performance scores for 2001 are added to this

**T-Scores For Vulnerable Population Groups
Hong Kong, 1986-2000**

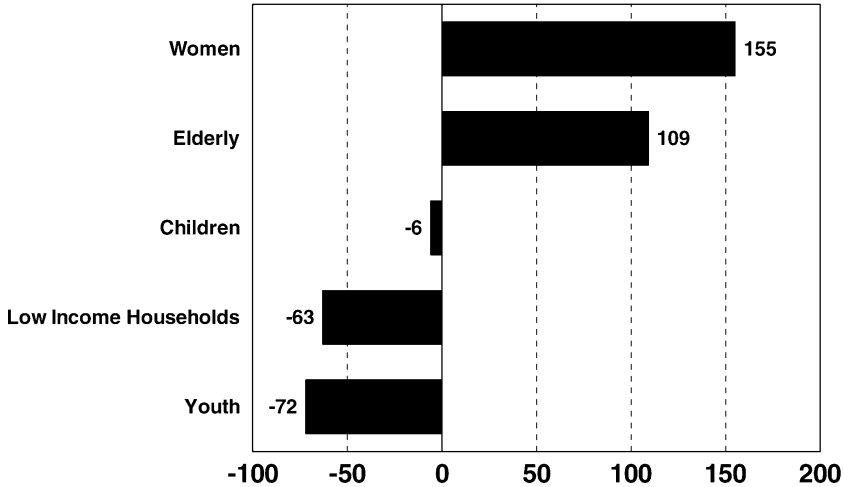


Figure 3. T-scores for vulnerable population groups for Hong Kong, 1986–2000.

four-year total. In any case, the SAR's strong four-year development performance between 1996 and 2000 was unexpected given the high level of political and economic uncertainty that existed in Hong Kong just prior to and immediately following its return to Chinese.

When viewed macroscopically, social progress in Hong Kong since at least 1981 has been steady and impressive. The gains reflect well on the Hong Kong's overall patterns of social investment, including investments made during periods of considerable political uncertainty. When viewed more microscopically (Figure 2), i.e., from the perspective of performances on each of the SDI-2002's 14 subindexes, development trends in Hong Kong between 1986 and 2000 are found to be more *asynchronous* and *asymmetric*.

SDI-2002: Sectoral Performances – Areas of Substantial Net Improvement

As reported in Figure 2, Hong Kong's most impressive 14-year development achievements occurred in four critically important

sectors: *Science and Technology* (+144), *Education* (+116), *Arts & Entertainment* (+116), and *Internationalization* (+114). The SAR's development gains in all four sectors reflect dramatic improvements in Hong Kong's scientific, educational, arts, and internationalization infrastructures. They also reflect a renewed "outward looking" vision on the part of its leaders as Hong Kong seeks to redefine itself within a larger Chinese (Ash et al., 2003; Chan and So, 2002; Horlemann, 2003; Lee, 2001) and global environment (ESCAP, 2003; HKCSD, 2000; Mottershead, 2004; Yeung, 2004).

On the *Science and Technology* subindex (Table III), for example, Hong Kong's rapidly increasing scientific contributions are reflected both in the number of patents granted by foreign patent offices to persons either residing in or conducting business in the SAR (which nearly tripled from 1010 in 1986 to 2970 in 2000) and in the number of scientific articles published by researchers affiliated with Hong Kong-based institutions (which increased from 1012 in 1986 to more than 6400 in 2000 – an increase of more than 500% in just 14 years). Increases on both indicators reflect innovations in science and technology that originated in Hong Kong or via institutions (both educational and commercial) engaging in original research in the SAR.

On the technological side, Hong Kong residents enjoy one of the world's highest rates of access to cellular phones, personal computers and the internet. Indeed, a recent study completed by the International Telecommunication Union confirmed that Hong Kong ranks 15th worldwide in the number of sponsored internet hosts and 1st worldwide in mobile telecommunications and internet capacity (International Telecommunications Union, 2003).

The magnitude and consistency of Hong Kong's improvements in science and technology since at least 1991 reflect considerable success on the part of the SAR in repositioning itself from being a net *consumer* of scientific and technological innovations produced by others to a net *producer* of such innovations.

Hong Kong's substantial past investments in *Education* also contributed to dramatic increases in the SAR's social

TABLE III
 Raw Score Values, Change Rates, and Statistical Weights for SDI-2002 Indicators for Selected Time Periods By Subindex
 ($N = 14$ Subindexes, 47 Indicators), 1981–2000

SDI-2000 Subindexes	Indicator Performance by Year						Percentage change 1986–2000*
	Statistical Weight	1981	1986	1991	1996	2000	
Strength of civil society subindex ($n = 4$)							
Number of charitable institutions and trusts recognized as qualifying for tax exemption (+)	0.55	1106	1398	1967	2542	3250	133
Private charitable donations as percent of GDP (+)	0.45	0.10	0.09	0.12	0.16	0.20	122
Ratio private charitable donations to government subventions (+)	0.40	0.04	0.03	0.05	0.04	0.03	0
Percent of work force affiliated with trade unions (+)	0.95	13.9	13.6	17.3	19.8	20.0	47
Political Participation Subindex ($N = 3$)							
Turn out in most recent District Board election (+)	0.80	38.9	37.5	30.3	32.5	35.8	-5
Ratio of candidates to territory wide political offices (+)	0.60	3.1	2.1	1.9	1.7	2.1	-3
Percent District Board candidates with political party affiliations	0.70	10.2	16.6	24.5	40.3	64.1	287

Internationalization Subindex ($N = 3$)	1.00	NA	61	71	81	118	93
Number countries that Hong Kong residents can travel to without a visa (+)							
Number registered companies incorporated outside Hong Kong (+)	0.90	1547	2238	2828	4604	6093	172
Number of international conferences held in Hong Kong (+)	0.70	256	381	245	294	246	-35
Economic subindex ($n = 3$)							
Per capita gross domestic product (GDP) at constant 1990 market prices (+)	0.90	65 410	81 528	106 401	122 718	134 064	64
Gross international reserves (months of import coverage) (+)	0.67	2.7	6.1	8.2	10.6	17.9	193
Percent of total household income earned by bottom 50% of households (+)	0.77	NA	22.9	22.8	21.1	18.6	-19
Environmental quality subindex ($n = 4$)							
Percent of gazetted beaches ranked as poor/very poor (-)	0.80	NA	33.3	21.4	34.2	14.6	-56
Per capita area of public open space (sq. meters) (+)	0.83	1.2	1.5	2.2	2.4	2.8	88

TABLE III
Continued

SDI-2000 Subindexes	Indicator Performance by Year						Percentage change 1986-2000*
	Statistical Weight	1981	1986	1991	1996	2000	
Per capita domestic units fresh water consumption (-)	0.87	47	49	55	64	67	37
Percentage of municipal solid waste recycled (+)	0.83	NA	24.5	47.4	55.0	51.5	110
Arts & entertainment subindex ($n = 4$)							
Number of buildings and archaeological sites declared as monuments (+)	0.70	13	30	45	63	72	140
Number films produced locally (+)	1.00	130	100	211	657	95	-5
Number of books and magazines first published in Hong Kong (+)	0.70	4225	6460	7250	7200	9773	51
Attendance at museum & cultural venues per 100 000 population (+)	1.00	NA	84 464	105 517	105 557	124 505	47
Sports and Recreation Subindex ($N = 3$)							
Number of public sporting facilities (+)	1.00	634	1045	1843	2218	2282	118
Average utilization rate of public sporting facilities (+)	1.00	NA	51.3	59.4	61.2	62.5	22
Size of delegation participating in major games (+)	0.30	NA	235	279	142	30	-87

Science & Technology Subindex ($n = 2$)									
Number of patents granted to HK entities (residents + non-residents) (+)	0.80	654	1010	1079	2205	2970	194		
Number of scientific publications in refereed publications (+)	0.80	NA	1012	1294	3794	6406	533		
Education Subindex ($n = 3$)									
Percent persons aged 20 and over with upper secondary educational attainment (+)	0.80	NA	35.2	42.3	47.5	51.3	46		
Percent persons aged 15 and over having attained tertiary education (+)	0.50	NA	7.6	9.5	12.5	14.9	96		
Adults in continuing education per 100 000 aged 15+ (+)	0.80	4204	6800	7465	6769	7290	7		
Health subindex ($n = 6$)									
Average life expectation at birth (+)	1.00	75.4	76.8	78.0	79.7	81.0	6		
Infant mortality rate per 1000 live born (-)	1.00	9.7	7.7	6.5	4.0	2.9	-62		
Tuberculosis cases per 100 000 population (-)	0.70	149	135	109	101	114	-16		
Adults smoking per 100 000 population aged 20+ (-)	0.80	26 407	21 000	17 010	15 793	13 082	-38		
Deaths from coronary heart diseases per 100 000 population (-)	0.90	40.6	46.4	52.9	51.3	54.1	17		
Suicides per 100 000 adults aged 20+ (-)	0.80	14.3	16.3	17.6	15.8	17.2	5		

TABLE III
Continued

SDI-2000 Subindexes	Indicator Performance by Year						Percentage change 1986-2000 ^a
	Statistical Weight	1981	1986	1991	1996	2000	
Personal safety subindex ($n = 3$)							
Reported food poisoning cases per 100 000 population (-)	0.80	12.8	19.5	13.2	28.4	36.8	89
Number of occupational fatalities per 100 000 workers (-)	1.00	10.9	6.0	8.1	8.8	5.9	-2
Number traffic fatalities per 100 000 population (-)	0.90	9.2	5.6	5.5	4.1	2.5	-55
Housing subindex ($n = 2$)							
Percentage of expenditure on housing as share of total household expenditure (-)	0.87	20.1	20.6	25.6	31.0	32.2	56
Number of waiting list applicants for housing authority rental flats (-)	0.77	162 000	177 000	166 083	149 340	109 633	-38
Crime & public safety subindex ($n = 4$)							
Violent crimes per 100 000 population (-)	1.00	318	255	340	236	218	-15
Non-violent crimes per 100 000 population (-)	0.50	1218	1219	1201	992	919	-25
Percent population reporting victimized by violent crimes (-)	0.70	1.0	1.0	0.7	1.1	0.9	-3

Number of corruption crime convictions per 100 000 (-)	0.50	7.3	3.5	3.8	3.5	3.9	11
Family solidarity subindex ($n = 3$)							
Marriages per 100 000 persons aged 15+ (+)	0.70	1111	880	866	675	552	-37
Divorces as percent of marriages (-)	0.95	4.7	11.4	16.0	26.8	43.4	281
Reported domestic violence cases per 100 000 households (-)	0.95	2.9	54.4	61.0	68.1	50.5	-7

*Census data have been collected in Hong Kong since at least 1981. However, data collected since 1986 are judged to be more reliable than those collected during earlier time periods. Hence, and though data for 1981 are reported in these tables, the analysis focuses on changes in Hong Kong's social performances only since 1986.

development profile. Adult literacy in the SAR, for example, increased from an already high of 87% in 1986 to 91% in 2000 – a rate of increase that is even more impressive given the high rate of migration into the SAR from parts of rural China where literacy rates tend to be substantially lower. Similarly, the percentage of Hong Kong adults aged 20 years and older with upper secondary school educations increased from 35% in 1986 to 51% in 2000 (+46%). And the percentage of Hong Kong's residents with tertiary level education increased by 96% between 1986 and 2000, i.e., from 7.6% to 14.9%. Clearly, Hong Kong is continuing to emerge as one of the East Asia's most human resource rich societies (Table III).

Although Hong Kong's once vibrant film industry appears to be losing ground relative to earlier years of growth (–5%), the SAR's overall performance on the *Arts and Entertainment* subindex confirmed that substantial progress is continuing to be made in both the SAR's extensive publications and cultural industries (Table III). The number of books published in Hong Kong in 2000, for example, increased to nearly 10 000 from fewer than 6500 in 1986 (+51%). Similarly, Hong Kong is making substantial investments in preserving some of its unique architectural and cultural treasures, i.e., the number of historic buildings and sites preserved for future generations increased from just 30 in 1986 to 72 in 2000 (+140%) – a mark of increasing maturity for every society. At the same time, the number of patrons visiting Hong Kong's museums and cultural venues increased by +47% during the same time period.

Internationalization also advanced in Hong Kong between 1986 and 2000. Progress in this sector is reflecting in the growing numbers of international businesses that have opened offices in the Hong Kong (an increase of +172% between 1986 and 2000), the increasing numbers of international conferences and meetings held in the SAR's world class conference settings and, the dramatic increase in number of countries to which Hong Kong residents can travel without formal passports or complex visa applications (an increase of some +93% from 61 in 1986 to 118 in 2000).

Thus, and despite international concerns regarding the potential isolation of Hong Kong following its return to Chinese sovereignty, Hong Kong remains an important international crossroads for the conduct of business and education. Though having to compete more aggressively with Shanghai, Beijing, Shenzhen and other large Chinese cities for business opportunities Hong Kong once took for granted, in fact, Hong Kong continues to succeed in serving as a major venue from which international corporations prefer to do business with the Chinese mainland.

SDI-2002: Sectoral Performances – Areas of Significant Net Improvement

The SDI-2002 also confirmed that significant social progress occurred in Hong Kong between 1986 and 2000 in four additional sectors; *Housing* (+79), *Political Participation* (+78), *Personal Safety* (+55) and *Strength of Civil Society* (+54) – (Figure 2).

Overall, access to affordable *housing* continues to represent one of the most intractable challenges confronting Hong Kong's leadership (Table III). The sources of the complexity in Hong Kong's housing sector are several: (1) limited geographic space on which new housing stock can be developed; (2) a steady flow of new arrivals into the community – each household placing its own demands on the existing supply of low-income housing; (3) the cost of housing which, for many residents can consume 50% or more of their total discretionary incomes (Average = 32% of household income in 2000); (4) long, and politically sensitive, waiting lists for publicly subsidized housing (averaging five or more years for the 110 000 households on the waiting list in 2000); (5) the absence of flexible financing schemes for purchasing housing on credit over the long-term; and (6) frequent long delays between the start and completion of construction on new residential space – much of which is eventually occupied by middle- and upper-income households.

A chronic shortage in housing for Hong Kong's rapidly expanding population have contributed to a sense of crisis for many in the SAR, a crises that has been compounded by a recent and sudden crash in real estate prices for all homeowners. Although the number of low-income persons on the government's list of applicants for Housing Authority flats declined by -38% between 1986 and 2000, every indication is that housing will remain near the top of list of Hong Kong's social development priorities.

Owing to its unique political situation, politics – but especially issues related to the nature and extent of *Political Participation* – in Hong Kong have been among the most contentious issues confronting Hong Kong. These issues have become particularly conflictual since the return of political sovereignty over Hong Kong to the PRC and, with it, continuous efforts on the part of the PRC to interfere with Hong Kong's participatory democratic traditions (Amnesty International 2002b; Editors 2003b, 2004a, 2004f; Windsor and Nelson, 2002; Spaeth, 2004).

The current political challenges confronting Hong Kong also are associated with the territory's past tradition of comparative passivity with respect of social activism. Prior to 1997, for example, political activism in Hong Kong tended to be vested more in the personalities of individual candidates and office holders than in any identifiable system of political parties. Electorate turnout even for district-wide votes never exceeded the high of 39% achieved in 1981. Similarly, the ratio of candidates to available district-wide positions tended to be low – averaging around 2:1 or 3:1 (Table III). In general, the political patterns revealed on the SDI-2002 for 1986–2000 suggest that comparatively little changed in the *structure* of political life in Hong Kong between 1986 and 2000⁷ with the important exception that by the year 2000 a substantially larger percentage of candidates for district-wide offices identified themselves as members of a political party than did candidates for public office in the past – 64% in 2000 compared with only 10% in 1981. By comparison, voter turnout for district-wide elections that same year remained at about 36%.

Hence, political activism in Hong Kong remains comparatively low and uneven – particularly when compared with that observed for other democratic societies, including other East Asian democratic societies (e.g., South Korea, Taiwan). The current shift toward a more recognizable system of political parties, however, does reflect an important change that is taking place in the SAR's political structure and, in time, is likely to result in both higher levels of voter turnout and a broader range of candidates for public office with clearer lines of accountability to the constituencies that elect them. Even as these processes are unfolding, however, the near-term impact of the central government's influence over local political issues cannot be fully assessed.

Personal Safety is an area of increasing concern to Hong Kong residents. On the SDI-2002 these concerns are reflected in three areas: (1) the incidence of food poisoning cases; (2) the incidence of occupational fatalities; and (3) the number of traffic fatalities. Taken together, these indicators reflect three critical dimensions of social life in Hong Kong, i.e., safety risks associated with Hong Kong's food supply, work places, roads and highways.

Since 1986, important net improvement occurred in reducing the number of people killed both in traffic accidents (–55%) and occupational accidents (–2%). Gains on both indicators are directly associated with laws and regulations that have been implemented since 1986 (e.g., mandated use of seat restraints, more rigorous automotive manufacturing standards), albeit Hong Kong's increasing roadway congestion – and with it reduced average driving speeds – has probably contributed to a reduction in traffic fatalities as well!

Hong Kong residents (and visitors), however, remain at a higher than expected risk of food poisoning given that the numbers of such cases increased between 1986 and 2000 from 20 cases per 100 000 population to an average of 37 per 100 000 population (+89%). Hong Kong's difficulties in protecting the quality of its commercial food supply is associated with the reality that the SAR imports nearly all of its food and, once imported, local sanitary conditions remain marginal in some

eating establishments that cater to the public. Food poisoning also is associated with the local preference for less-than-fully-cooked chicken and fish and, hence, increased risk of exposure to micro-organisms that have not been destroyed in the food preparation process.

Civil Society institutions are more deeply established in Hong Kong than anywhere else in East Asia (Estes, 2001). Consisting of a large network of privately established organizations that promote the “public interest” in such areas as the arts, culture, religion and labor relations, these voluntary organizations function apart from government – albeit their missions frequently complement and extend those of government (especially governmentally-funded activities in education, health care, the social services, and so on). Other civil society organizations in Hong Kong perform a “watch dog” function vis-à-vis government, thereby seeking to promote increased public accountability on a wide range of public policy issues, i.e., environmental, political oversight, human rights, public safety, among others.

Data collected on the SDI-2002 confirm that, between 1986 and 2000, Hong Kong strengthened its already extensive network of civil society. The SAR’s most significant gains in this sector were in the number of new privately organized groups and organized that were granted tax exempt status by Hong Kong’s Inland Revenue Bureau because of their public benefit activities – an increase of +133% from 1106 such organizations in 1986 to 3250 in 2000. Similarly, the level of “countable” financial support provided to these organizations by private citizens increased by +122% between 1986 and 2000 from 0.1% of GDP to 0.2%. Unfortunately, the ratio of governmental support for these same organizations remained flat over the entire 14-year period of the study.

Clearly, civil society organizations and institutions serve important functions in Hong Kong society. Every indication is that this sector will continue to gather additional strength over at least the near-term and, at times, may choose to follow paths that differ appreciably from those laid out by governmental and other public-interest bodies.

SDI-2002: Sectoral Performances – Areas of Moderate Net Improvement

Moderate levels of 14-year social progress occurred for Hong Kong in three SDI-2002 sectors (Figure 2): *Health* (49), *Environment* (+47), and *Economic* (+40).

The quality of *health* care in Hong Kong improved dramatically between 1986 and 2002 (Table III). Gains in this sector are most evident in:

- sharp reductions in infant (–62%), child (–56%) and maternal mortality rates (–30%);
- unprecedented reductions in the rates of infectious and communicable diseases, including tuberculosis (–16%);
- appreciable reductions in the prevalence of adult cigarette smokers (–38%);
- significant increases in childhood vaccination rates (UNDP, 2003; WHO, 2003).

By way of comparison with other small economically advanced societies, Hong Kong currently ranks 1st among other “high human development” countries with respect to its low rate of infant deaths (along with Norway, Japan, Sweden, Finland and Singapore), 5th with respect to its rate of child deaths, and 4th most favorable among the world’s nations with respect to the number of women who die in child birth (Estes, 2002). As reported in Table IV, Hong Kong also performs favorably on both these and other health indicators when compared with other economically advanced East Asian societies.

Hong Kong’s impressive advances in the health sector contributed, in turn, to increases in years of life expectation for the SAR population-as-a-whole, i.e., by 6% from an average of 77 years in 1986 to an average of 82.8 years for women in 2001 (Table IV). Gains in average life expectation were even more impressive for Hong Kong’s elderly population for whom years of additional life expectation on reaching age 65 increased from an average of 17 in 1986 to 19 in 2000 (+16%). Today, average life expectation in Hong Kong for both men and women equals that found in Japan (Average = 81 years) and exceeds that of

TABLE IV
 Selected Economic, Population, Health and Technology Characteristics of Four East Asian Societies: Hong Kong, Japan, Korea and Singapore, 2000–2004 (est.)

Selected indicators	Hong Kong	Japan	South Korea	Singapore	Tot (T)/Avg (A)
Selected Economic Indicators					
Dominant Type of Economy	Free market economy highly dependent on international trade	Free market economy structured around government-industry cooperation	Free market economy highly dependent on international trade	Free market economy highly dependent on international trade	
Currency Exchange Rate to USD (March, 2004)	7.80	123.0	1155.0	1.69	
Gross Domestic Product in Purchasing Power Parity (Bil\$, 2002 est.)	186	3550	931	105	T = 4772
Inflation Rate (%), 2004 (est.)	3.1	Nil	3.1	1.6	A = 2.6
GDP Real Growth Rate (%), 2004	6.5	3.4	5.4	5.9	A = 5.3
Purchasing Power Parity (PPP)	\$26 000	\$28 000	\$19 400	\$24 000	A = 24 350

GDP Composition by Sector					
Agriculture (%)	0.1	1.4	4.4	Nil	A = 2.0
Industry (%)	13.4	30.9	41.6	33.0	A = 29.7
Services (%)	86.5	67.7	54.0	67.0	A = 68.8
Central Government	30.7	718.0	95.7	19.5	T = 863.9
Budget Expenditures					
(Billion \$, 2002 est.)					
Central Government Expenditures (as % of GDP, 2001)					
Health (%)	14.3	6.0	2.6	1.2	A = 3.3
Education (%)	22.1	3.5	3.8	3.7	A = 3.7
Defense & Military (%)	na	1.0	2.8	5.0	A = 2.9
Total Debt Service (%)	0.0	na	6.2	na	A = 3.1
Labor Force (Millions)	3.5	67.7	22.0	2.2	T = 95.4
Unemployment Rate (%), 2004	7.5	5.0	3.1	4.6	A = 5.1
Youth Unemployment Rate	11.0	10.0	na	5.0	A = 8.7
Selected Population Characteristics					
Population (millions), 2015	7.9	127.2	49.7	4.7	T = 189.5
Population Growth Rate (%), 2001–2015	0.9	0.0	0.4	1.0	A = 0.6
Birth Rate (‰)	10.7	9.6	12.6	12.8	A = 11.4
Total Fertility Rate	1.0	1.3	1.4	1.4	A = 1.3
Net Migration Rate/1000 population	7.6	0.0	0.0	25.8	A = 8.4

TABLE IV
Continued

Selected Indicators	Hong Kong	Japan	South Korea	Singapore	Tot (T)/Avg (A)
Median Age (years)	37.5	42.0	33.2	34.5	A = 36.8
Age Structure					
0-14 years (%)	17.3	14.4	20.6	17.3	A = 17.4
15-64 years (%)	71.7	67.0	71.5	75.5	A = 71.4
65 and older (%)	11.0	18.6	7.9	7.2	A = 11.2
Selected Health Characteristics					
Infant Mortality	5.6	3.3	5.0	3.0	A = 4.2
Rate/1000, 2001					
Average Life Expectation					
(years)					
Females	82.8	84.4	79.3	83.6	A = 82.5
Males	77.2	77.6	71.7	77.5	A = 76.0
Physicians Per 100 000	130	197	100	100	A = 131.8
Population, 2002 (est.)					
Per Capita Health	1134	2243	899	913	A = 1297.3
Expenditures, 1995-1999					
HIV/AIDS Adult	0.1	<0.1	<0.1	0.2	A = <0.13
Prevalence Rate (%)					
People Living with	2600	12000	4000	3400	A = 22000
HIV/AIDS					
HIV/AIDS Deaths	<100	430	220	140	A = <890

Selected Technology Characteristics					
Internet Users per 100 people, 2001	38.7	38.4	52.1	41.2	A = 42.6
Personal Computers in use per 100 people, 2001	38.7	35.8	48.1	50.8	A = 43.4
High Technology as % of Exports, 2001	20	26	29	60	A = 33.8
Internet Users per 100 people, 2001	38.7	38.4	52.1	41.2	A = 42.6

Data sources: CIA World Factbook (2003); Editors (2004g); Estes (2005); Hong Kong Statistics & Census Bureau, 2004; UNDP (2003, 2004); World Bank (2002a, 2003). "na" refers to either "not available" or "not appropriate".

Singapore and many economically advanced Western societies (including the United States which reported an average life expectation of in 2002 of somewhat less than 77 years).

On the negative side, the incidence of both coronary heart disease and adult suicides in the SAR increased by 17% and 5%, respectively between 1986 and 2000. Both trends are worrisome but, fortunately, current prevalence patterns for both causes of death in Hong Kong are substantially below those reported for other economically advanced East Asian societies.

Hong Kong's gains in the health sector are the result of extensive investments on the part of both the public and private sectors in the SAR's preventive (e.g., the establishment of more comprehensive immunization and well-baby clinic programs) and clinical care infrastructures (e.g., more hospitals and nursing homes and, within the former, a larger number of specialty-care units). The gains also reflect higher levels of public awareness concerning the need for preventive health care and for earlier detection of serious diseases and illnesses that could develop into debilitating and, even fatal, conditions (World Health Organization, 2003).

Much like its housing sector, Hong Kong's *Environmental* sector remains one of the most troublesome areas of development in the SAR. The sources of Hong Kong's environmental challenges are multiple and stem from factors that originate both within and outside the SAR: (1) Hong Kong's extraordinary population density; (2) its comparative lack of attention in the past to health-undermining environmental issues (e.g., air and water pollution, relative scarcity of green and other recreational spaces); (3) Hong Kong's dependence on the mainland for much of its fresh water; (4) pollutants that flow into Hong Kong from both mainland China and other societies within the region; and (5) a continuing low level of sensitivity on the part of many Hong Kong residents of the need to protect its fragile natural environment, conserve resources, and recycle usable solid and other wastes.

Despite these challenges to its environmental integrity, Hong Kong did make substantial 14-year gains on a number of indices contained on the SDI-2002: (1) the percentage of municipal waste

that is recycled increased by +110% between 1986 and 2000; (2) more “green” and “open” spaces have been set aside for public use (+88%); and (3) the number of public beaches where water quality was rated as either “poor” or “very poor” declined by 56% from 33% in 1986 to 15% in 2000. However, Hong Kong did lose environmental ground with respect to the number of units of fresh water consumed on a *per capita* basis which increased from 49 units in 1986 to 67 units in 2000 (+37%).

Whatever additional gains continue to be made by Hong Kong in the environmental sector, almost certainly, environmental issues will continue to be among the most challenging faced by the SAR for at least the near-term – especially given the serious water and air quality problems impacting Hong Kong from the outside.

Hong Kong’s once vibrant *Economic* sector also has come under serious assault. Much of the sector’s instability is related to the current global economic crisis (Editors, 2002a,b; Editors, 2003a; ESCAP, 2003) but much of it also stems from a combination of Hong Kong’s dependence on exports for the bulk of its economic growth and on a comparative lack of economic diversity (Table IV; Hong Kong Commission on Strategic Development, 2000). Since its return to PRC sovereignty in 1997 Hong Kong also has had to compete with Shanghai and other cities on the Chinese mainland for markets which Hong Kong previously dominated (including its well established financial and insurance industries). Unlike during previous decades of development, increasing numbers of young Hong Kong entrepreneurs are leaving the SAR in search of economic opportunities on the Chinese mainland.

A major response of the SAR to its recurrent economic crisis has been to accumulate substantial foreign currency reserves (Table III). By the end of 2000 these reserves amounted to approximately 18 months of import coverage just six months of coverage in 1986 (+193%); today, these reserves now exceed US \$120 billion – the 5th highest worldwide (Editors, 2004g: 90).

Hong Kong also is seeking to reduce its exposure to future economic crises by both slowing the rate of expansion of the public sector and by reducing the size of the SAR’s publicly

supported workforce. Substantial inroads have been made by the SAR government on achieving both goals (Table III). Unfortunately, progress in constricting the growth of public expenditures has contributed to: (1) comparatively slower rates of growth in per capita income levels; (2) further concentrations of total wealth in the hands of a relative minority of Hong Kong individuals and institutions; and (3) nearly frozen personal wages for those at the lowest end of the earnings spectrum (Table III). All three patterns are especially serious given Hong Kong's unpredictable inflationary and deflationary trends in combination with a low corporate marginal tax rate (16%). The net result is that low income households and others earning at the bottom end of the income ladder are unable to hold on to the marginal economic positions that they held in the recent past (Estes, 2002). Increasingly, Hong Kong appears to be developing into a society of "haves" and "have mores" with growing numbers of people condemned to positions of comparatively little or no social mobility.

SDI-2002: Sectoral Performances – Areas of Modest Net Improvement

Less significant, but still important, 14-year gains in social development were reflected for Hong Kong on the SDI-2002's *Sports & Recreation* (+24) and *Crime and Public Safety* (+22) subindexes (Figure 2).

The number of public sporting facilities in Hong Kong, for example, more than doubled between 1986 and 2000 (+118%), i.e., from 1045 to 2282 (Table III). At the same time, utilization of these facilities increased by an average of +22%. Thus, opportunities for participating in both individual and organized sports and recreational activities in the SAR has increased appreciably.

Modest gains also are reflected for Hong Kong on the *Crime and Public Safety* subindex. The most important improvements are reflected in 14-year declines in the number of violent (-25%) and non-violent (-15%) crimes detected by police authorities. At the same time, Hong Kong authorities

prosecuted a larger number of cases involving public corruption (+11%). All three trends suggest that Hong Kong, despite its growing population and economic challenges, is continuing to develop into a society in which crime is less tolerated than during earlier decades but also in which crimes are occurring with decreasing frequency.

In comparison with other HHD societies,⁸ Hong Kong currently ranks 4th lowest with respect to the incidence of intentional homicides and 19th lowest with respect to the number of reported drug crimes involving adults (UNDP, 1999: 221).

SDI-2002: Sectoral Performances – Areas of Substantial Net Loss

Hong Kong's most dramatic, and most troubling, social losses occurred in a sector in which Hong Kong traditionally has been a world leader, i.e., *Family Solidarity* (-74). The very severe decline in Hong Kong's performance on this subindex between 1986 and 2000 is associated with: (1) sharp decreases in the marriage rate (-37%); (2) even sharper increases in Hong Kong's divorce rate (+281%); and (3) only slightly improved rates of *reported* family violence (-7%). (The statistics of family violence here only refers to violence between couples. There also has been a substantial increase in reported cases of child and elder abuse.) Clearly, "the family" in Hong Kong is undergoing tremendous change. For many families traditional family norms and roles appear to be no longer functional.

Hong Kong's Vulnerable Population Groups

Considerable variation also exists in the 14-year social development performances of Hong Kong's historically vulnerable population groups, i.e., 'socially excluded' populations that have not been able to participate adequately in the SAR's rapidly changing social, political or economic environments (Estes, 1999a).

Figure 3 summarizes 14-year social development trend data (T-2002) for five historically vulnerable population groups of special concern to the HKCSS: *children, youth, the elderly, women, and persons living in low-income households*. These data

provide poignant evidence of the gap that currently exists between Hong Kong's comparatively well-off population groups and those which, for a combination of reasons, systematically are excluded from full participation in the growing social abundance enjoyed by others.

On the positive side, significant net social gains were achieved for *women* (+155) and *the elderly* (+109) between 1986 and 2000 (Figure 3). The gains reflected on the Figure 3 for these groups are substantial and reflect steady improvements in overall social advancement during the full 14-year period of the study. Today, for example, a larger percentage of women serve as elected members of District Boards (+93%), hold positions as senior level administrators and managers (+27%), and command median wages that are more comparable to those received by males (+9%). Similarly, a larger percentage of married women are able to retain employment in the workforce than had been the case in the past (+8%). On the negative side, the percentage of women in low income households increased by +77%, i.e., from approximately 10% of all women in 1986 to nearly 18% in 2000.

Though social progress for women in Hong Kong has been steady and important, on balance, the social, political and economic opportunities available to women in the SAR remain fewer than those available to women in the majority of other economically advanced societies. The gender-specific disparities that continue to exist for the majority of Hong Kong women are especially apparent when the current socioeconomic status of Hong Kong's women are compared with that of women in Europe. Even within East Asia, *Gender Empowerment* and *Gender Development* index scores for Hong Kong women lag behind those of Japan and, on some key indicators, behind those of Singapore as well.

Social progress for Hong Kong's rapidly increasing elderly population (the majority of whom are women) also is notable. A dramatic 14-year increase has occurred in the number of elderly participating in organized social programs (+247%), as has their involvement in political elections, especially at the District Board level (+68%). The percentage of Hong Kong's

elderly population with at least lower secondary educational attainment also increased appreciably between 1986 and 2000 (+30%) as did their average additional years of life expectation on reaching age 65 (+16%), i.e., from an average of 16.7 to 19.4 years. Unfortunately, though, the percentage of elderly Hong Kong residents living in low-income households also increased dramatically (+53%), i.e., from 22.4% in 1986 to 34.3% in 2000. This latter trend confirms that, as of the year 2000, 1:3 Hong Kong elderly now live under conditions of poverty compared with fewer than 1:4 in 1986. Longer life expectation, in combination with solitary survivorship and the geographic mobility of their children, are contributing to the growing incidence of poverty among Hong Kong's elderly population.

Even more troubling in the T-2002 data summarized in Figure 3 are the highly negative social trends observed for Hong Kong's youngest and most economically vulnerable populations. T-Scores for *low-income households* declined by -63 and those for *children* and *youth* by -6 and -72, respectively. Rates of negative social development of this magnitude are not sustainable for any society, but especially for small, densely populated, societies such as Hong Kong in which a very high value is placed on children and youth and their potential future contributions to the larger society.

Clearly, children and youth raised under conditions of extreme social and economic stress cannot be expected to contribute as much to their societies as those raised under more favorable conditions. The present crisis confronting Hong Kong's children and youth is all the more urgent given that disproportionate numbers of the SAR's "at-risk" children and youth also live in the SAR's growing numbers of low-income households. More specifically, between 1986 and 2000:

- The percentage of children aged 1–14 years living in low income households increased by 96% from 13% to 26%;
- The number of child victims of physical, sexual, or emotional abuse more than doubled from fewer than 14 children per 100 000 to nearly 34 children per 100 000 (+142%);
- The percentage of youth aged 15–19 years living in low income households increased 163% from 9% to 25%;

TABLE V
 Selected Gender Equality Indicators of Four East Asian Societies: Hong Kong, Japan, Korea and Singapore,
 2000–2004 (est.)

Selected indicators	Hong Kong	Japan	South Korea	Singapore	Average (A)
Maternal mortality ratio, 1985–2001	na	8	20	6	A = 11.3
Female professional and technical workers (as % of total)	40	46	34	43	A = 40.8
Ratio of estimated female to male earned income	0.57	0.46	0.46	0.50	A = 0.50
Ratio of females to males in tertiary education, 2000–2001	26	53	61	na	A = 46.7
Gender Related Development Index (GDI), 2003 (Rankings based on $N = 144$ countries)	0.898 (Rank = 23)	0.932 (Rank = 12)	0.882 (Rank = 29)	0.884 (Rank = 28)	A = 0.899
Gender Empowerment Index (GEM), 2003 (Rankings based on $N = 144$ countries)	na	0.531 (Rank = 38)	0.377 (Rank = 68)	0.648 (Rank = 20)	A = 0.519

Data sources: CIA World Factbook (2003); Editors (2004g); Estes (2005); Hong Kong Census Bureau, 2004; UNDP (2003, 2004); World Bank (2003). “na” refers to either “not available” or “not appropriate”.

- The rate of youth unemployment more than doubled (+130%) from 10% to 24%;
- The prevalence of drug use among youth also nearly doubled (+181%) from 239 per 100 000 to 673 per 100 000;
- The number of youth arrested for having committed a violent crime increased by 8% from 366 per 100 000 to 394 per 100 000 among youth aged 15–19 years;
- The number of youths aged 10–19 years committing suicide during the period increased less dramatically, i.e., by 18% from 2.5 per 100 000 to 2.9 per 100 000 (Samaritan Befrienders, 2001).

However, these negative trends were not sufficient to offset the following positive 14-year social trends also reflected on the children and youth subindexes:

- A dramatic decline in the under 5 years of age child mortality rate (–56%), i.e., from 164 per 100 000 in 1986 to 72 in 2000;
- A decline in the number of child arrest rates (–26%), i.e., from 788 per 100 000 in 1986 to 581 in 2000;
- An increase of 22% in the number of Hong Kong youth attaining S4 or higher levels of education, i.e., from 64% in 1986 to 78% in 2000; and,
- More than doubling of the percentage of youth ages 15–24 years studying full-time courses at tertiary education, i.e., from 3.3% in 1986 to 10.4% in 2000.

Children and youth living in low-income households, along with the adult members of those households, experience higher levels of social and economic vulnerability than do Hong Kong children and youth who are living in more financially secure housing arrangements. These realities are reflected in:

- The rapidly increasing size of Hong Kong's low-income population (+93%) to some 1 221 000 persons in 2000 compared with only 524 000 in 1986;
- Higher levels of unemployment (+143%) among low-income households, i.e., from an average of 9% in 1986 to an average of 21% in 2000;

- A smaller share of total household income by employed low-income workers (–19% from 23% in 1986 to 19% in 2000);
- Only modest improvements in real wages (+25%); and,
- Only slight improvements in the ability to purchase housing and food using these wages, i.e., a +13% increase in inflation-adjusted purchasing power between 1986 and 2000.

Clearly, Hong Kong's low-income households are being squeezed from both within and without with the result that comparatively few are able to keep up with the dramatic economic fluctuations – and subsequent social and emotional strains – to which the vast majority of residents of the SAR currently are exposed. In combination with a comparatively weak system of social supports for financially vulnerable population groups, the SAR's growing numbers of low-income children, youth and households are in serious danger of a social implosion of a magnitude not experienced in modern Hong Kong.

DISCUSSION

The social development patterns reported for Hong Kong in this analysis are quite profound. Some offer reassurance that Hong Kong is on the “right track” with respect to achieving at least a portion of its social agenda – especially its goal of rapid economic development. Other findings, though, are troubling – including those which confirm that entire segments of the Hong Kong population are being left behind in the comparative economic prosperity enjoyed by others. Disparities in social development are particularly pronounced among the SAR's growing numbers of low-income households, its sizable population of youth in trouble, and many thousands of elderly who have not been able to achieve either financial or emotional security. Large numbers of Hong Kong's children also are considerably under-developed relative to their peers in other well-off societies. Despite important gains in the employment, political and economic sectors, social progress for many of Hong Kong's women also is far from secure. And one of Hong

Kong's most important and traditional sources of stability and strength, its extended family system, is under serious assault.

In preparing for the next phase of development, Hong Kong needs to search for a better balance between its social and economic development priorities. Such a balance will need to place people and their development at the center of Hong Kong's future social initiatives, i.e., a commitment that ultimately must result in increasingly higher levels of *human* development. The realization of such an ambitious objective necessarily will require the engagement of increasingly larger numbers of people and institutions in Hong Kong's development planning and implementation processes. Their realization also will require the active participation of all relevant stakeholders in framing both the goals of development and the means that are to be in their realization. Only through such active involvement and participation on the part of all relevant development stakeholders can Hong Kong expect to succeed in achieving increasingly higher and more secure levels of social development.

Certainly, Hong Kong already possess the raw materials needed to advance a new, more focused, development agenda: (1) ample fiscal and economic resources; (2) a large and well educated pool of human resources; (3) a dedicated civil service system; (4) a vibrant economic sector; (5) a remarkable network of civil society organizations; and, (6) a strong sense of solidarity between and among Hong Kong residents. Hong Kong also already possesses a clear sense of its own identity, a strong – even if currently challenged – set of democratic institutions based on historical legal and political principles, and a substantial treasury of international good will within the global community. All of these elements, if put together carefully and with a commitment to inclusiveness, can be expected to advance Hong Kong's quality of life now and in the future.

NOTES

¹ An earlier version of this paper was presented under the title "Advancing Quality of Life in Hong Kong: The Unfinished Agenda" to the International Conference on "Quality of Life in a Global World" held on the campus of

the Chinese University of Hong Kong, Hong Kong SAR, November 14–15, 2003. Professor Paul S.N. Lee, conference convener, is thanked for his contribution in facilitating work on this paper.

² The following staff members of the Hong Kong Council of Social Service contributed substantially to the research reported in this paper: Chua Hoi Wai, Business Director (Policy Research and Advocacy); Mariana Chan and Maggie Lau. The author would also like to thank the Chairperson (Daniel Shek) and members of the Specialized Committee on Social Development of the Hong Kong Council of Social Service for steering the development of the SDI-2002.

³ Since its return to Chinese sovereignty on June 30, 1997, Hong Kong is referred to as “Hong Kong SAR” (Special Administrative Region).

⁴ The SDI-2002’s further development now falls under the responsibility of the HKCSS’ Specialized Committee on Social Development chaired by Dr. Daniel Shek of the Chinese University of Hong Kong. The author acknowledges with appreciation the contribution being made by Dr. Shek and members of his committee in both refining the index and in undertaking regular updates to the present study.

⁵ The methodological procedures associated with each of the project’s major research activities are detailed in: HKCSS (2000); Estes (2002, 2005).

⁶ Statistical weights for the 47 indicators used to create the SDI-2002 are reported in the first data column of Table III.

⁷ Since election for the district-wide offices (called District Board before the 1997 turnover or District Council afterwards) was not held annually, the data of the year 2000 corresponded to the election in the year 1999.

⁸ HHD refers to “high human development” societies – a designation assigned by the United Nations to approximately 55 countries characterized by advanced levels of social, political and economic development. Hong Kong currently ranks 23 out of 177 countries in overall level of human development (UNDP, 2004:143).

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THE PRE- AND POST-1997 WELL-BEING OF HONG KONG RESIDENTS

ABSTRACT. Since July 1997, Hong Kong has become a Special Administrative Region (SAR) under the sovereignty of China. This paper compares the social well-being of Hong Kong residents before and after the change of sovereignty by analyzing six sets of survey data collected between 1990 and 2001. These are six biennial territory wide Social Indicator Surveys conducted to collect subjective assessments of well-being of Hong Kong residents. Analysis of the survey data which are typically categorized subjective evaluations has to deal with the commonly encountered problems of ‘direct quantification’ (Schuessler and Fisher, 1985) and ‘incomplete data’ (Little R.J.A. and Rubin D.B., 2002, *Statistical Analysis with Missing data* (Wiley-Interscience, New Jersey). The problems are handled by applying ‘optimal scaling’ and ‘hot-deck imputation’ as recommended by Shen S.M. and Lai Y.L. (2001, *Social Indicators Research* 55, pp. 121–166). Different life domain measures as well as compound measures in the form of indices are studied. The data analysis indicates that the residents of Hong Kong were most satisfied in 1997 and least satisfied in 1995. It reveals that the sovereignty change had major impact on many life domains of the people of Hong Kong and the effect was compounded by the economic situation of the territory.

INTRODUCTION

The signing of the Sino-British Joint Declaration in 1984 confirmed the return of sovereignty of Hong Kong to the People’s Republic of China on July 1, 1997 after the city was colonized by the British for more than one and a half centuries. During the transitional period from 1984 to 1997, a lot of issues would have to be negotiated and agreed between the British and the Chinese governments while the residents of Hong Kong had to go through an unprecedented period of political uncertainties.

It was not a straightforward negotiation and the process was less smooth than the residents would prefer. The residents of

Hong Kong experienced stress and anxiety due to uncertainties of the future of Hong Kong. Some chose to migrate to other countries, many remained but watched closely how the Sino-British negotiations progress.

The stability of Hong Kong, however, was not disturbed. Combined with the rapid economic growth in the early 1990s, the Government was able to continue to accumulate reserve and to increase spending on infrastructure construction, tertiary education, social welfare and other social commitments. As the two governments compromised and arrived at many more agreements in the mid-1990s, migrants started to return to the territory and the property market boomed to record high in 1997.

After the change over in 1997, residents of Hong Kong continued their style of living and experienced little change in their daily life. The Government, now the Government of Hong Kong Special Administrative Region of China, tried to introduce many policies to improve different dimensions of Hong Kong. Major education reform at school level and substantial increase in land supply to ease the sky high property market in 1997 were examples of the new moves. The economic downturn resulted from the 1997 Asian economic crisis, however, caused great impact on the budget of the Government, and counteracted the Government's effort.

To compare the quality of life and social well-being of the Hong Kong residents before and after the change over of sovereignty, this study uses data collected from a series of Social Indicator Surveys conducted jointly by The Chinese University of Hong Kong, The Hong Kong Polytechnic University and The University of Hong Kong. They are biennial territory-wide surveys collecting subjective assessments on a spectrum of life domains. In agreement with the mainstream researchers in the field, these surveys utilized the subjective approach in the developments of social indicators which includes perceptions, values, feelings and aspirations of Hong Kong residents toward various facts of their life. Emphasis has been placed in 'experience of life' rather than "condition of life".

Each of the surveys successfully interviewed around 2000–5000 respondents which were randomly selected using

multistage stratified systematic sampling schemes and the response rates achieved have been quite consistently at 50% or slightly higher. Details of the survey methodology have been presented by Shen (1992, 1995, 1997, 1999, 2001, 2003).

In our study, we adopt the approach of Andrew and Withey (1976) and Campbell et al. (1976) and define the subjective quality of life or well-being as the degree of satisfaction of individual's perceived life to match with his/her internal standard or referent and effective evaluation (e.g. happiness).

Subjective satisfaction assessments on 20 life domains collected in six surveys, four conducted before the change over (1990, 1992, 1995 and 1997) and two afterwards (1999 and 2001) are analyzed to make comparisons. In addition to the individual life domains, quality of life indicators on global well-being and well-beings of major dimensions of life based on Shen and Lai (2001) are also used for comparison.

DATA AND METHODOLOGIES

Data

The data were collected in a series of biennial territory wide surveys. Each of these surveys had different themes of study but they maintained a core part of the questionnaire which remained largely unchanged over time. The core part included 20 life domains covering nine personal life aspects and 11 societal conditions.

The personal life domains are

- (i) Family life (PFAM),
- (ii) Education attainment (PEDU),
- (iii) Health status (PHEA),
- (iv) Financial situation (PFIN),
- (v) Job (PWORK),
- (vi) Relationship with friends (PFRI),
- (vii) Relationship with relatives (PREL),
- (viii) Living environments (PHOU), and
- (ix) Leisure time (PLEI).

The societal conditions are

- (i) General economic situation (SECO),
- (ii) Public order (SORD),
- (iii) General political situation (SPOL),
- (iv) Performance of Hong Kong Government (HKGGOV),
- (v) Transport (STRAN),
- (vi) Housing (SHOU),
- (vii) Medical services (SHEA),
- (viii) Education (SEDU),
- (ix) Social welfare (SWEL)
- (x) Employment situation, and (SOCC),
- (xi) Recreation facilities (SREC).

The questions generally read, 'How satisfied are you with... (a specific life aspect)?'. Responses were measured by an ordinal scale of five categories labeled as

- '1' Very dissatisfied,
- '2' Somewhat dissatisfied,
- '3' Neutral,
- '4' Somewhat satisfied, and
- '5' Very satisfied.

Off scale choices "Don't know" and "No answer" were also provided for respondents who had no idea on the subject or who were unwilling to give their responses.

The labels '1', '2', ... , and '5' were used as initial qualification of satisfaction level but the off-scale choices were not directly quantifiable and hence become missing responses.

Although each survey had a valid sample size of around 2000, the 2000 completed questionnaires contained varied numbers of missing responses due to the off-scale choices. Such missing responses introduced difficulties in data analysis. When life domains are studied item by item, for example, neglecting the missing responses may lead to findings based on different subsets of the sample. Cross tabulation and multivariate statistical analysis will have to decide whether to perform a *complete-case analysis* ignoring the incomplete cases containing missing responses or using other means.

Methodologies

To enable statistical analysis of empirical data collected from sample surveys, researchers used to perform *complete-case analysis* (Campbell et al., 1976; Rice, 1984; Ying, 1992; Wang, 1994) which simply excludes observations containing missing responses and *direct quantification* which assigns correspondingly the values 1, 2, ... , 5 to the ordered level of response categories and treats these values as if they were continuous. Shen and Lai (1998a) examine the disadvantages of adopting these simplistic approaches. Firstly, the complete-case analysis incurs serious loss of information from discarding all the partially responded observations. Kim and Curry (1977) study the seriousness of information loss and Shen and Lai (2001) verify that such an approach would lead to serious reduction of valid sample size by at least 30% and in the worst case, a reduction of 60% leaving only 40% of the sampled respondents to be included in the analysis.

The second disadvantage is due to *direct quantification* which uses only a few values, five values in the case of our data sets, to quantify the set of response categories. The measure of degree of satisfaction towards life can be regarded a continuous variable. The crude and artificial quantification categorizes many different degrees of satisfaction to the same value as illustrated in Figure 1.

Respondents A and B, for example, possess different degrees of satisfaction. With limited number of categories, they might choose the same option of 'somewhat dissatisfied' and end up

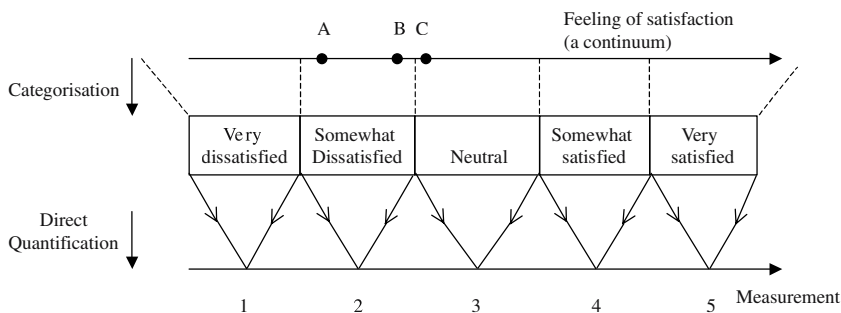


Figure 1. An illustration of the artificiality of direct quantification.

being assigned the same value '2'. Respondent B and C, as shown in the figure, have very similar feeling of satisfaction. Due to their own personal *relative scale*, however, they might have chosen the different categories and end up being assigned values '2' and '3', respectively. Clearly, the ordering of categories describes only the *relative levels*, but not the *absolute values* of the respondents' feelings.

Shen and Lai (1997) recommend to apply *optimal scaling* (OS) to rescale the direct quantification. This method, as pointed out by Young (1981), is a quantification process which assigns 'suitable' numerical values to observation categories in such a way that the relation between the observations and the data analysis model is maximized while respecting the measurement characteristics of the raw data.

As a result of rescaling, the difference between measurements A and B shown in Figure 1 may be restored and assigned values A' and B' as shown in Figure 2 rather than the artificially assigned identical value of '2'. The relative relationship between A, B and C in Figure 1 has an opportunity to be recovered and assigned values A', B' and C' as shown in Figure 2.

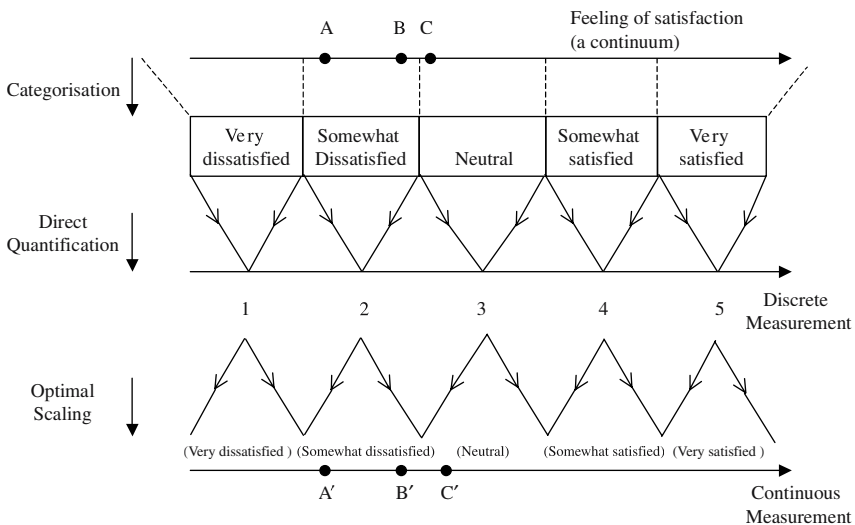


Figure 2. Reconstruction of continuity of measurements.

We combined random hot-deck imputation and OS procedure to analyze the data. Justification of the approach can be found in Shen and Lai (2001). Assuming missing data appeared at random, sample mean of the imputed data set has proved to be an unbiased estimator of the population mean by Lai (1998). The algebraic formula of the standard error of the estimate has also been developed explicitly by Lai (1998).

This paper follows through the methodology employed by Shen and Lai (2001) to construct three sets of quality of life indicators, the *Global Quality of Life Index*, the *Personal Well-Being Index* and the *Societal Well-Being Index*. Separate comparisons based on the 20 life domains are also investigated.

Since the item 'Job satisfaction' does not apply to the group of respondents not holding any paid job and since the previous analysis done by Shen and Lai (2001) has spotted systematic difference between the economically active (EA) and economically inactive (EI) groups, analysis is carried out separately for the two groups.

QUALITY OF LIFE (QOL) INDICES

All the 20 life domains listed in Section Data are different items devoted to related aspects of sense of well-being and possess substantial correlation among them. As pointed out by Campbell et al. (1976), it would be appropriate to amalgamate these items into a compound measure or index for more efficient and effective monitoring of the set of items. For this reason, Shen and Lai (2001) aggregate the set of responses over the 20 life domains with an aim to construct some quality of life indicators representing the general sense of well-being in Hong Kong.

This paper follows the same methodology and tries to keep track of the changes on the overall satisfaction as well as the changes on the variations of various life domains.

Global QOL Indices

Similar to the model used by Campbell et al. (1976) and Rice (1984), the global sense of well being could be assessed by a

weighted average of assessments towards a variety of life domains. Shen and Lai (1998a, b) suggest to adopt and provide justification for using the first principal component of the set of 20 life domains.

With *direct quantification*, the first principal component was able to capture around 20% of the total variance and when missing data were taken care by the random hot deck and OS method described in Section Data and Methodologies, the percentage of variance captured increased to over 50%. The weights represent, in a way, the relative importance of the roles played by respective life domains to the overall satisfaction of life.

Taking 1990 as the base year, we can construct two different series of Global QOL indices, namely the Laspeyres (LA) series and the Weighted Aggregates (WA) series which are defined as

$$LA = \frac{\sum w_b a_c}{\sum w_b a_b} \quad \text{and} \quad WA = \frac{\sum w_c a_c}{\sum w_b a_b}$$

where w_b and w_c are the base year and the current years weightings, and a_b and a_c are the mean assessments of individual life domains at the base year and the current year. The LA index series hence relies solely on the base year weighting w_b while the WA index series considers both the base year w_b and the current year w_c weightings.

When both base year and current year weightings are used in the index construction as in the case of WA series, changes in the QOL indices reflect a combines result of changes in (1) general satisfaction measures and (2) the relative importance of the life domains in explaining the variation of the global well-being from one period to another. When only the fixed base year weighting is used, in the case of the LA series, changes in the index value reflect only the changes in the QOL assessments. The effect of changes in the relative importance of individual life domain is completely ignored. More details of the conceptual difference between the different index series can be found in Shen (1996).

The measures of Global QOL in Hong Kong from 1990 to 2001 are exhibited in Table I and a graphical presentation of

TABLE I
 Measures of Global QOL with respect to the base year and current year weightings as well as the corresponding LA and WA indices

Group	Year	Global QOL (base year, 1990, weightings)	Laspeyres Index (LA)	Global QOL (current year weightings)	Weighted Aggregates Index (WA)	
EA	1990	3.173	100.0	3.173	100.0	
	1992	3.136	98.8	3.152	99.3	
	1995	3.103	97.8	3.107	97.9	
	1997	3.243	102.2	3.231	101.8	
	1999	3.152	99.3	3.157	99.5	
	2001	3.152	99.3	3.171	99.9	
	EI	1990	3.190	100.0	3.190	100.0
		1992	3.138	98.4	3.167	99.3
		1995	3.081	96.6	3.087	96.8
		1997	3.253	102.0	3.248	101.8
1999		3.134	98.3	3.141	98.5	
2001		3.159	99.1	3.158	99.0	

the trends of the LA and WA series of the Global QOL is shown in Figure 3. It is obvious that the Global QOL indices for both EA and EI groups declined steadily from 1990 to 1995, followed by a rebound in 1997. The rebound was due to two reasons. The fact that the Chinese and British Governments arrived at more agreements when approaching the date of change-over and the discrepancies between the Chinese and the British reduced gradually. The news comforted all parties and the residents were confident and expect a smooth political transition in 1997. The more important factor was the strong economy in most of the world markets, people were therefore optimistic towards most of the life domains, including both personal and societal measures. The economic downturn since late 1997, therefore, could be the major factor leading to the decline of the Global QOL in 1999 and 2001. Given the continuous poor economic situation, the evaluations in the forthcoming study in 2003 could remain low.

QOL Sub-Indices

The first principal component impressively explained over half of the total variation of the data. Further examination of the successive principal components suggests that the first two principal components were able to capture 70% of total variation. Shen and Lai (1998b, 2001) show that two meaningful sub-indices can be constructed by applying factor analysis to

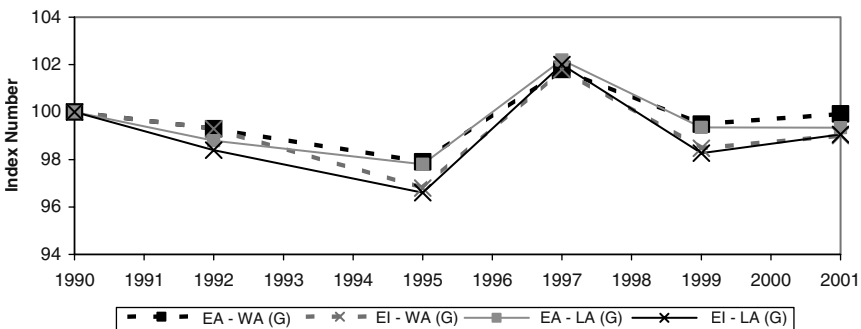


Figure 3. Index series of Global QOL for both the EA and EI groups.

the data. The two sub-indices thus obtained can appropriately named *Personal Well-Being and Societal Well-Being* because they, respectively, comprise all the personal life domains and the societal conditions as given in Section Data.

Measures of Personal Well-Being based on the current and base year weightings, as well as the LA and WA indices are given in Table II.

For the Personal Well-Being sub-indices, there were no significant differences between the LA and WA series as the changes were within 1% throughout the whole study period. Figure 4, shows that the *Personal Well-Being* for the EA and EI groups were quite stable from 1990 to 1995. It experienced a steady increase from 1995 to 1999 and the rate of the increase was more significant for the EA group. However, the EI group recorded a drop in 2001 while the EA group remained more or less the same as in 1999.

Since 1995, the difference between the EA and EI groups has become more significant. Apparently the EA group was more satisfied than the EI group. The bigger gap between the two groups revealed in 2001 could probably be due to the high unemployment rate where some of the respondents became economically inactive simply because they lose their jobs for a prolonged period of time. The un-employment rate in Hong Kong remained high since the 1998 Asian financial crisis. From a low of 2.2% in 1997, the unemployment rate shot up to 4.7% in 1998 and had never come down again. The structural unemployment had disabled many job seekers from entering the job market again. Dissatisfaction in the EI group had therefore been much more serious than those in the EA group.

The relevant data for the *Societal Well-Being* indices are given in Table III and the graph is shown in Figure 5. The trend is dramatically different from the *Personal Well-Being* indices. They rolled down sharply from 1990 to 1995, followed by a spectacular upward shift in 1997. Different from the quality of personal life, the rise and fall of the quality of societal situation was much more considerable. However, the indices fell again after 1997. The overall trends of both the EA and EI

TABLE II
 Measures of Personal Well-Being with respect to the base year and current year weightings as well as the corresponding LA
 and WA indices

Group	Year	Personal well-being, (base year, 1990, weightings)	Laspeyres Index (LA)	Personal well-being (current year weightings)	Weighted Aggregates Index (WA)
EA	1990	3.397	100	3.397	100
	1992	3.372	99.2	3.371	99.2
	1995	3.400	100.1	3.400	100.1
	1997	3.445	101.4	3.444	101.4
	1999	3.477	102.333	3.474	102.244
	2001	3.474	102.264	3.473	102.214
EI	1990	3.378	100	3.378	100
	1992	3.364	99.6	3.362	99.5
	1995	3.355	99.3	3.355	99.3
	1997	3.380	100.1	3.378	100
	1999	3.411	100.957	3.407	100.859
	2001	3.381	100.068	3.372	99.799

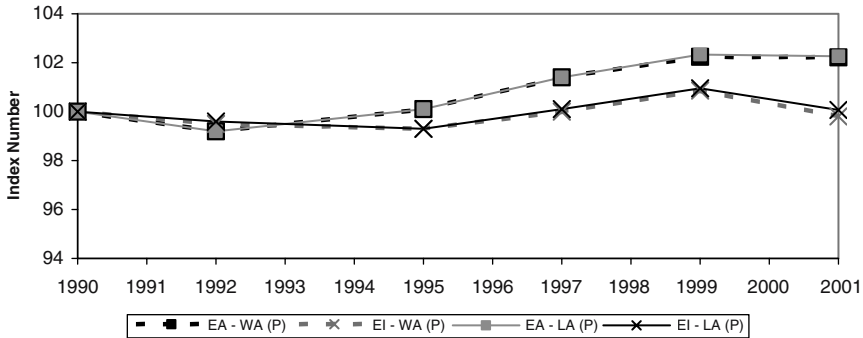


Figure 4. Index series of Personal Well-Being for both the EA and EI groups.

groups are quite similar although the rate of change experienced by the EI group was a bit more substantial.

These QOL sub-indices can be seen as an alarm calling for the attention of the government and society to introduce appropriate policies to lead Hong Kong during times of changes. These indices are the combined result of individual life domains. It will be interesting to see the information given by each of the domains and study the relationship between the aggregated indices and the individual domains.

GENERAL PROFILE OF INDIVIDUAL LIFE DOMAINS

Life in a modern society is multi-dimensional. The construction of the Global QOL indicators can be viewed as composite satisfaction feelings towards a variety of aspects of life. We shall present each of the 20 life domains which formed the basis of the indices.

Individual Life Domains Assessed by the EA and EI Group

The mean assessment of each life domain offers an unbiased estimate of the average level of satisfaction experienced by the residents in Hong Kong. Table IV and Figure 6 summarize the changes of the subjective evaluations of the nine personal life domains for the EA and EI groups while Table V and Figure 7

TABLE III
 Measures of societal well-being with respect to the base year and current year weightings as well as the corresponding LA
 and WA indices

Group	Year	Societal well-being (base year, 1990, weightings)	Laspeyres Index (LA)	Societal well-being (current year weightings)	Weighted Aggregates Index (WA)
EA	1990	3.019	100.0	3.019	100.0
	1992	2.975	98.6	2.977	98.6
	1995	2.903	96.2	2.903	96.2
	1997	3.106	102.9	3.107	102.9
	1999	2.931	97.1	2.953	97.8
	2001	2.932	97.1	2.952	97.8
	1990	3.099	100.0	3.099	100.0
	1992	3.030	97.8	3.047	98.3
	1995	2.955	95.3	2.959	95.5
	1997	3.193	103.0	3.204	103.4
EI	1999	3.018	97.4	3.035	97.9
	2001	3.057	98.6	3.046	98.3

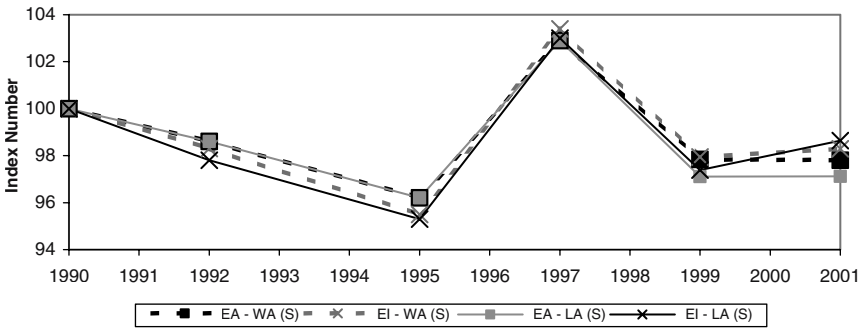


Figure 5. Index series of societal QOL for both the EA and EI groups.

exhibit the results of the eleven societal conditions for the EA and EI groups during the period from 1990 to 2001.

It can be seen that there has not had significant changes in all satisfaction assessments of the personal life domains. They are quite stable over time and are mostly on the satisfied side with mean assessments above the value '3'. The EA group has been more satisfied than the EI group in most of the cases. Most significant difference has been revealed in the domain 'Health' where EA group has a much better perception of their personal health than the EI group.

The societal conditions give a very different picture. Graphs in Figure 7 show that the 'General Economic Situation' was perceived to be much worse and 'Transport' was better after 1997. Out of the 11 domains, the EI group was more satisfied than the EA group in six of them. Only in the domain 'Employment situation', the EA group was more satisfied.

The Personal Life Domains Before and After 1997

The bar charts shown in Figures 8 and 9 summarize the mean assessments of the nine personal life domains given by the EA group and the EI group, respectively. The separation line at '3.0' represents 'neutral'. A mean assessment above '3' is shown as a positive assessment above the separation line and otherwise as a negative assessment below the separation line.

The evaluations of the EA group and EI group are very similar. Over the entire period, it can be seen that all personal

TABLE IV

A summary of the mean satisfaction assessments of personal life domains from 1990 to 2001

Global QOL items	Group	Mean satisfaction assessments						
			1990	1992	1995	1997	1999	2001
Personal life domains								
Family life	PFAM	EA	3.70	3.76	3.78	3.83	3.84	3.79
		EI	3.66	3.69	3.67	3.67	3.69	3.63
Educational attainment	PEDU	EA	2.87	2.81	2.82	2.88	3.01	3.00
		EI	2.84	2.80	2.72	2.83	2.85	2.82
Health status	PHEA	EA	3.59	3.52	3.56	3.62	3.63	3.62
		EI	3.39	3.28	3.31	3.37	3.36	3.31
Self-financial situation	PFIN	EA	3.20	3.14	3.16	3.24	3.20	3.22
		EI	3.14	3.16	3.10	3.14	3.11	3.07
Job	PWORK	EA	3.4	3.30	3.30	3.33	3.33	3.29
Relationships with friends	PFRI	EA	3.68	3.68	3.71	3.75	3.76	3.76
		EI	3.62	3.64	3.63	3.68	3.70	3.69
Relationships with relatives	PREL	EA	3.51	3.55	3.57	3.64	3.64	3.69
		EI	3.54	3.58	3.59	3.60	3.63	3.60
Living environment	PHOU	EA	3.25	3.26	3.36	3.36	3.45	3.46
		EI	3.36	3.44	3.38	3.42	3.49	3.46
Leisure time	PLEI	EA	3.35	3.30	3.32	3.34	3.39	3.40
		EI	3.37	3.29	3.34	3.38	3.38	3.41

measures, expect 'Educational attainment' (PEDU), have positive mean assessments (above 3.0). In spite of the political change, the satisfaction levels of all the nine domains show slight increases when comparing the assessments immediately before and after 1997.

The most satisfying life domains fall again in the realms of social networking: 'family life' (PFAM), 'relationship with friends' (PFRI) and 'relationship with relatives' (PREL). The finding is in line with the previous quality of life studies on Chinese communities (Ying, 1992; Wang, 1994) and on American societies (Campbell et al., 1976), when intimate social bonding including relationships with family members and friends, was identified as the most favorable life aspect. After the return of Hong Kong to China in 1997, the respondents reported

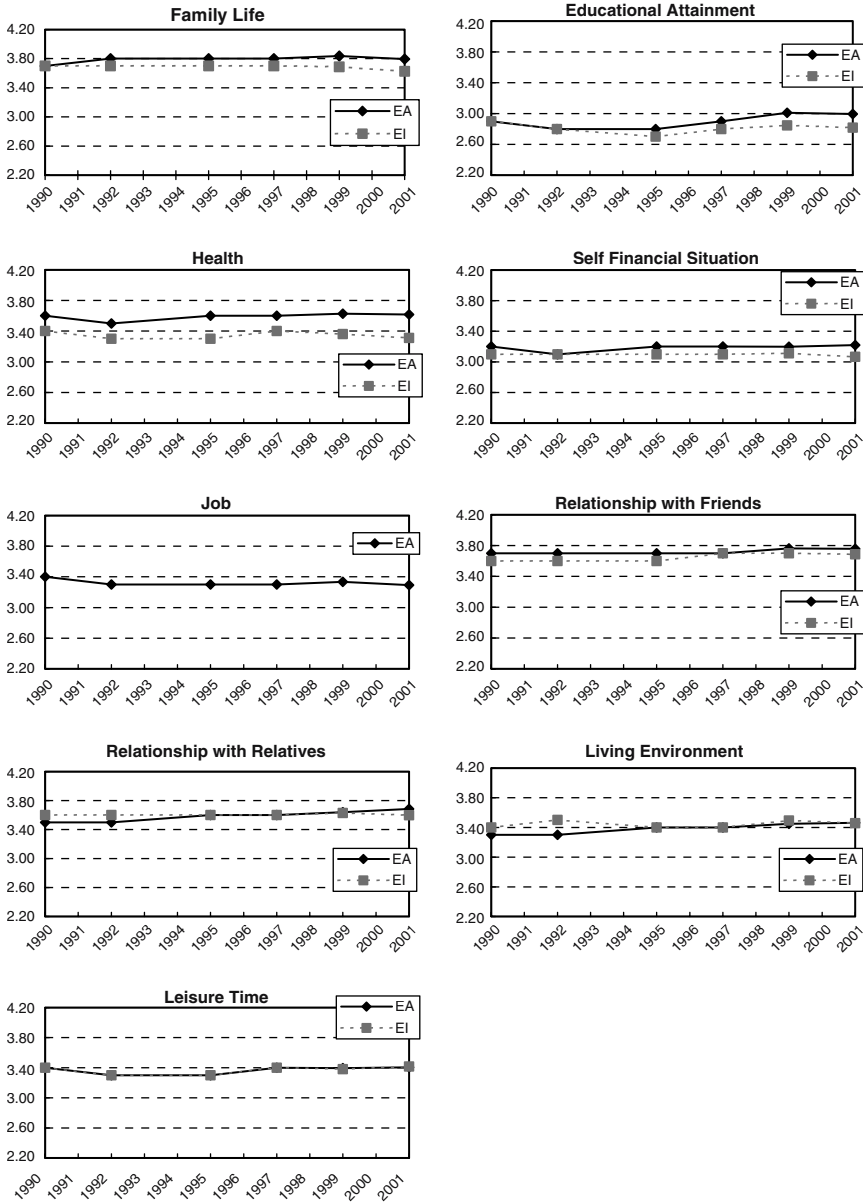


Figure 6. Mean satisfaction assessments of the nine personal life domains from 1990 to 2001.

TABLE V

A summary of the mean satisfaction assessments of societal conditions from 1990 to 2001

Global QOL items	Group	Mean satisfaction assessments						
		1990	1992	1995	1997	1999	2001	
Societal conditions								
General economic situation	SECO	EA	3.28	3.12	2.71	3.10	2.39	2.38
		EI	3.31	3.10	2.70	3.22	2.45	2.43
Public order	SORD	EA	2.76	2.77	2.91	3.14	3.08	3.13
		EI	2.77	2.64	2.84	3.11	3.05	3.03
General political situation	SPOL	EA	2.73	2.56	2.64	2.96	2.72	2.78
		EI	2.76	2.65	2.79	3.02	2.80	2.91
Performance of Hong Kong	HKGOV	EA	3.02	2.97	2.85	3.13	2.66	2.61
		EI	3.14	3.08	2.87	3.26	2.76	2.78
Transport	STRAN	EA	2.86	2.96	2.88	3.29	3.36	3.48
		EI	2.95	3.09	3.11	3.44	3.45	3.51
Housing	SHOU	EA	2.88	2.77	2.80	2.71	2.98	3.00
		EI	3.07	3.02	2.91	2.92	3.12	3.22
Medical services	SHEA	EA	2.94	3.10	3.15	3.38	3.27	3.37
		EI	3.08	3.13	3.21	3.49	3.39	3.57
Education	SEDU	EA	3.18	3.21	3.28	3.33	3.12	2.94
		EI	3.25	3.26	3.32	3.46	3.28	3.13
Social welfare	SWEL	EA	2.82	2.86	2.88	3.00	3.08	3.00
		EI	3.01	3.04	3.07	3.22	3.27	3.30
Employment situation	SOCC	EA	3.35	3.01	2.42	2.72	2.34	2.37
		EI	3.31	2.88	2.26	2.56	2.25	2.28
Recreational facilities	SREC	EA	3.40	3.39	3.35	3.43	3.28	3.25
		EI	3.46	3.46	3.43	3.44	3.33	3.40

slightly higher satisfaction in the domains revealing the social bonding.

On the other hand, the only negative domain on 'Education attainment', for the very first time, was given a non-negative (above 3) assessment after 1997 by the EA group. This particular observation does not appear among the EI group. Future data will be required to confirm whether the EA group has become more satisfied with their own educational attainment.

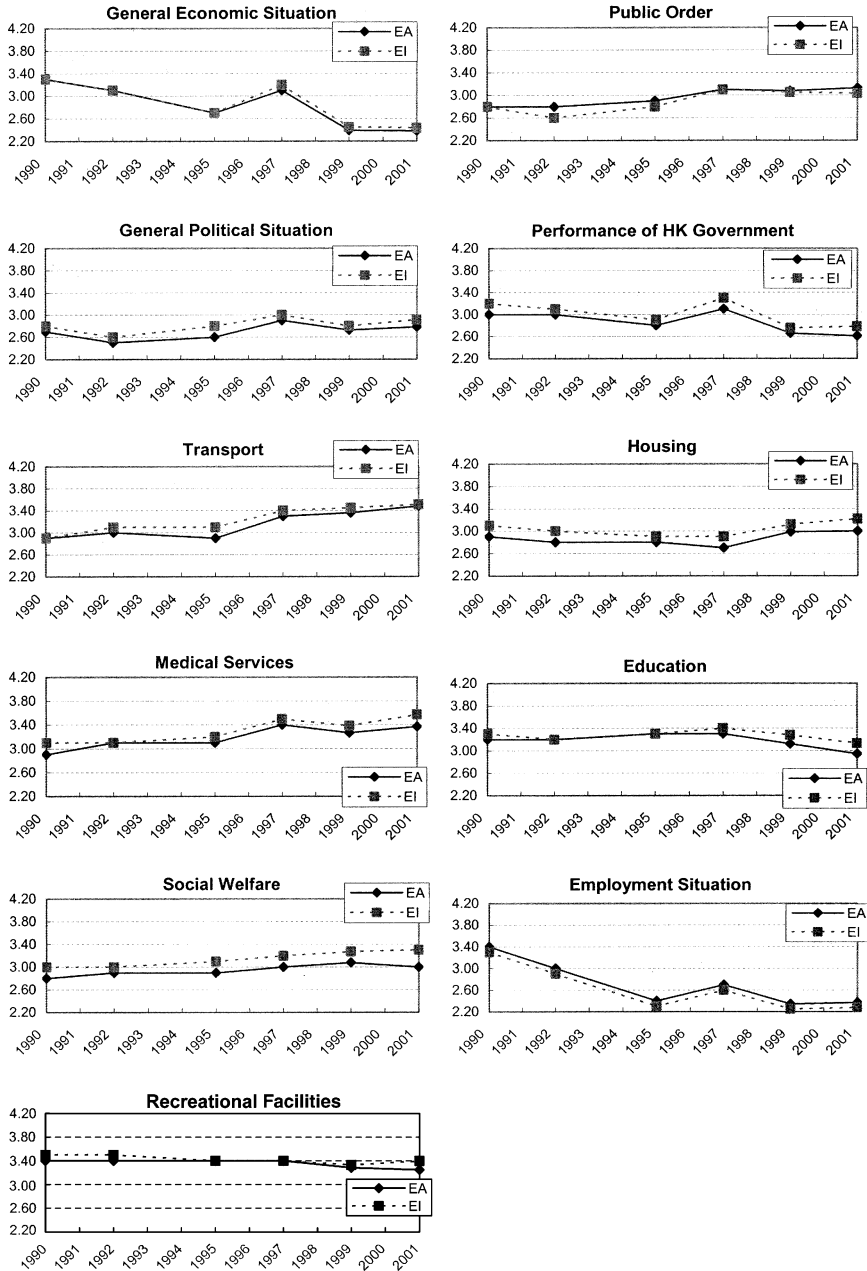


Figure 7. Mean satisfaction assessments of the 11 societal conditions from 1990 to 2001.

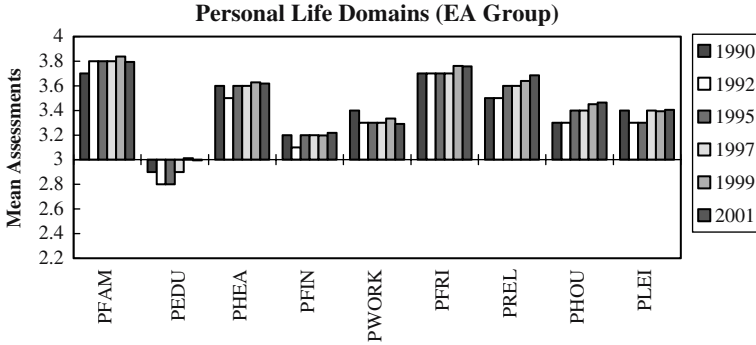


Figure 8. Mean assessments of the nine personal life domains of the EA group from 1990 to 2001.

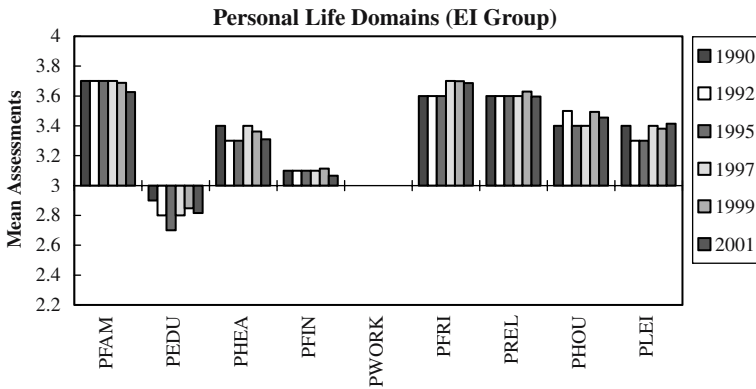


Figure 9. Mean assessments of the nine personal life domains of the EI group from 1990 to 2001.

The Societal Conditions Before and After 1997

The rather consistent evaluations of the personal domains are completely overturned when we study the 11 domains on societal conditions. More fluctuations and discrepancies can be seen from the bar charts shown in Figures 10 and 11. There are many more ‘negative’ mean assessments and many more significant changes. Eight out of the 11 domains studied displayed significant differences between the pre- and post-1997 time periods. Among the eight domains, five gave negative changes and three positive.

The two economically related domains ‘General economic situation’ (SECO) and ‘Employment situation’ (SOCC) reveal the most significant downward change. This can be largely explained by the impact of the Asian financial crisis and the bursting of the property market bubble in 1997 and 1998. The carry over effect was huge and the unemployment rate went up to record high and worried everybody. The perceptions and feelings reflected by both the EA and EI groups were the same.

With respect to the performance of the new government, however, the domain ‘Performance of Hong Kong Government’ (HKGGOV) reveals disappointment of the residents.

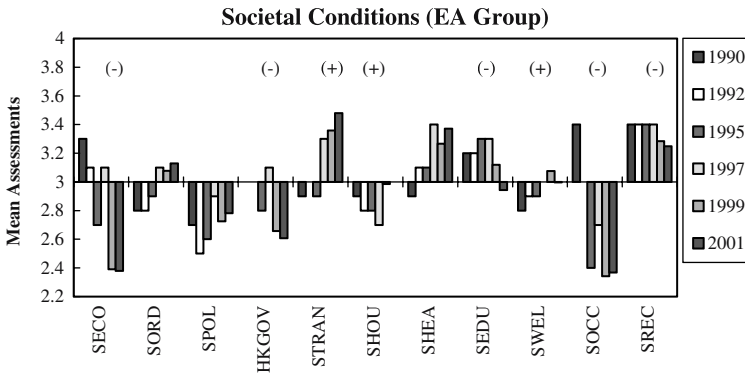


Figure 10. Mean assessments of the 11 societal conditions of the EA group from 1990 to 2001.

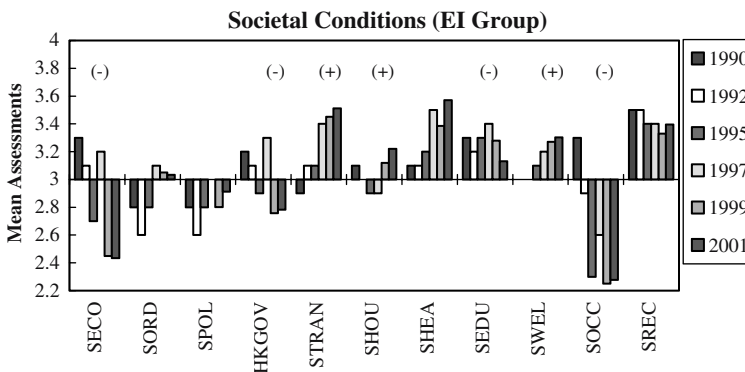


Figure 11. Mean assessments of the 11 societal conditions of the EI group from 1990 to 2001.

Comparing with the assessment before the change over, the post-1997 assessments went down a lot. The Chief Executive of Hong Kong, having no politician's training, little public administration experience and practically no time to learn about the public sector's operations, had faced a lot of difficulties in implementing the new concept of *one country two systems*. Multiplying such difficulties with the economic downturn, the dissatisfaction with the performance of the government could be expected.

One of the major reform introduced by the new government was the educational reform. Nearly everybody in the society is a stakeholder of education, any reform therefore would be closely scrutinized by the citizens and it would take considerable time to accommodate changes. A number of new policies were introduced into the school system within a few years. Such policies touched upon the medium of instruction, curriculum reform, the mode and system of open examinations, etc. A lot of uncertainties were therefore perceived by the teachers, parents and students and accordingly aroused concerns, worries and resistance to changes. The feelings have been reflected in the bar charts in Figures 10 and 11. For the EA group, the latest survey data gave, for the first time, a negative response in the domain 'Education' (SEDU) while the EI group also displayed downward mean assessment values.

'Recreation facilities' (SREC) was another domain where significant drop in satisfaction level is revealed by the EA group. Observations from the EI group do not demonstrate a clear difference in this aspect. This might have arisen from the cautiousness in environmental protection.

In spite of the drops reported in the above five domains, three other domains gave positive changes. They are 'Transport' (STRAN), 'Housing' (SHOU) and 'Social Welfare' (SWEL). The major reason underlying the high assessment of these three domains is the economic downturn. The price of property was halved within a couple of years after 1997. The problem of housing was therefore largely eased. In addition to the reduction of economic activities causing less pressure on transportation, the government's success in introducing

competition in public transport, especially in allowing more bus companies to enter the market was the other reason for easing the problems in transportation. Competition and lower overhead due to deflation offered lower fares and better transport services. This in turn boosted up the level of satisfaction in transportation.

In terms of political situation, the domain 'General political situation' (SPOL) does not reflect disturbing feelings. Although the mean assessments were slightly worse in the latest two surveys than the one in 1997, they were better than those in the early 1990s.

The change in 'Medical Services' (SHEA) has not come from the political change but rather the performance of the Hong Kong Hospital Authority which has not suffered from the political change over. The performance has however been affected by funding. The Government's budget deficit during the economic downturn would not sustain free medical services to be offered at high level. The future assessments will very much depend on the government's financial conditions.

The domain with least noticeable changes is 'Public order' (SORD). Compare with the surveys conducted in 1997 immediately before the change over, respondents' sense of satisfaction on this aspect remain positive with some slight fluctuations among those in the EA group. Within the EI group, there was a downward trend.

Most of the observed changes are common to both the EA and EI groups. Broadly speaking, the residents of Hong Kong were less satisfied in economic and political aspects after 1997 but more satisfied in transportation, housing and social welfare.

DISCUSSION

The present paper applied various statistical data analysis methods to build up meaningful measures to study the well-being of Hong Kong residents. We focus on the difference between the pre- and post-1997 periods.

Among the nine personal life domains, not much obvious difference could be spotted. The bar charts in Figures 8 and 9

show that the EA group was more satisfied with their 'Education attainment', 'Relationship with friends', 'Relationship with relatives' and 'Living environment' in the post-1997 period. The EI group was more satisfied in their 'Living environment' after 1997. The aggregated effect of these differences can be viewed from Figure 4 which gives the index series of personal quality of life for both the EA and EI groups. The satisfaction level was not distinguishable at the beginning of the series but got further apart as time went on. The overall trends were similar that both went up and down at the same time. As the unemployment rate increased the EI group got more dissatisfied. The overall change, was mild when contrasted with the societal well-being.

Among the 11 societal conditions (Figures 10 and 11), the 'general economic situation', 'performance of Hong Kong Government', 'education' and 'employment situation' had obviously dropped in satisfaction while 'public order', general political situation', 'transport', 'housing' and 'medical services' showed improvement after 1997. The drops, however, were much bigger in magnitude than the rises and hence the *Societal QOL* in Figure 5 shows significant drop which had brought the satisfaction from record high reported just prior to the change over in 1997 to a point which was slightly worse than the beginning period, the early 1990s.

The overall *Global QOL* had followed the trend picked up by the *Societal QOL* with a milder fluctuation because of the more stable *Personal QOL* but it is still obvious that the post-1997 satisfaction level had gone down considerably. The drop was mainly due to the dissatisfaction in 'General economic situation'. The mean assessment dropped from 3.1 to around 2.4 amounting to a drop of over 22%. The other less satisfied domains were 'Performance of Hong Kong Government' and 'Employment situation' which dropped 16% and 15%, respectively. The more satisfied domains 'Housing' and 'Transport' had gained 11% and 6%, respectively.

Without converting to index numbers as presented in Figures 3–5, we can also present the data as three major social indicators, namely,

- (i) Global QOL indicator,
- (ii) Personal well-being indicator, and
- (iii) Societal well-being indicator.

Using the base year weightings, the values of the three indicators are shown in column three of Tables I–III and plotted in Figures 12–14. Choosing the base year weightings rather than the current year weightings has the advantage of saving the tedious calculation in the future.

All the analyses reflected the fact that the key changes were due to economic factors. The relative importance of the perception on the performance of the government is yet to be analysed. Theoretically this can be studied when the economic situation recovers and the performance of the government remains the same. Practically this is rather unlikely because these two assessments are highly correlated and there is confounding effect when we study the impact of these two assessments.

The drops in satisfaction level reported in 1999 and 2001 were foretold by Shen and Lai (2001) based on the economic projection at that time. The future development will still very much depend on the economic situation which is regarded, by the Hong Kong citizens, as of primal importance.

The analysis has shown that the three simple indicators, one global and two sub-indices can summarize the overall situations efficiently. The Laspeyres (LA) series with all weightings readily available is much more conveniently to be adopted in the future.

Although the subjective evaluation of the well-being of Hong Kong residents can be effectively summarized by the indices there

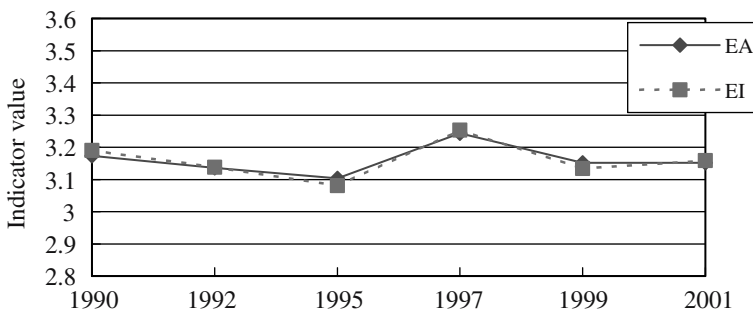


Figure 12. Global QOL indicator.

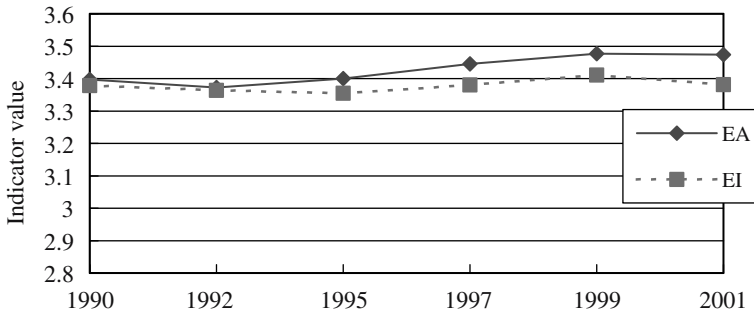


Figure 13. Personal well-being indicator.

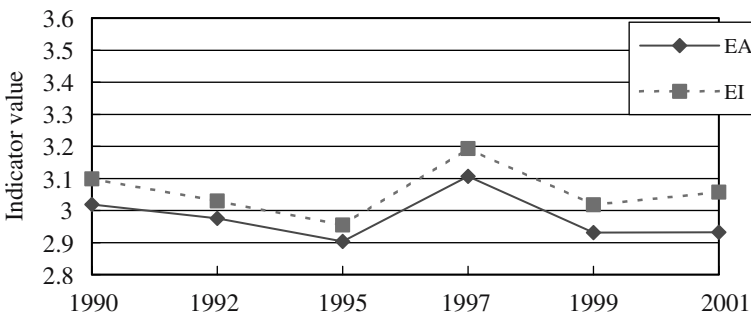


Figure 14. Societal well-being indicator.

is still need to collect similar data in a more frequent and timely manner. The more immediate findings may help the decision and policy makers to manage the social and political risks.

ACKNOWLEDGEMENT

The authors would like to thank Mr Chun Fan Lee for carrying out some statistical data analysis.

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QUALITY OF LIFE IN HONG KONG: THE CUHK HONG KONG QUALITY OF LIFE INDEX

(Accepted 15 August 2004)

ABSTRACT. The CUHK Hong Kong Quality of Life Index, which aims to assess and monitor the quality of life in Hong Kong, is a composite index incorporating both objective and subjective measures. This index, developed by the Faculty of Social Science of The Chinese University of Hong Kong, employs data collected in representative sample surveys and official statistics. A wide range of life domains is covered and the year 2002 is taken as the base year of the study. Index scores demonstrate that in general the quality of life in Hong Kong has improved slightly in 2003; scores of the composite index and the three sub-indices on sectorial performance are somewhat higher than those of the previous year. It is noteworthy that Hong Kong has made noticeable progress and performs as well as many economically advanced societies in certain life domains; yet, the well-being of the people relies on further improvement in others.

KEY WORDS: quality of life, life satisfaction, well-being, life domains, social development

INTRODUCTION

Hong Kong, which has a total population of about seven million, has emerged as a highly modernized commercial center in East Asia over the last half century. Having been a British colony for a century and a half until its sovereignty was reclaimed by the People's Republic of China in 1997, Hong Kong has apparently achieved a high level of modernization and urbanization. After decades of rapid economic growth and urbanization, Hong Kong experienced the longest period of economic recession in its history subsequent to the outburst of the Asian financial crises in 1997, and is undergoing a drastic change in the 21st century. In the face of an economic downturn, a budget deficit, income

inequality, environmental pollution, and other problems, the quality of life in Hong Kong has been adversely affected. This is an appropriate time to compile a composite index to monitor the quality of life in Hong Kong.

It was not until the 1960s that 'quality of life' became an extensively discussed subject across academic domains and developed gradually into a major concern of the public and the government (Andrews, 1986; Diener and Rahtz, 2000; Diener and Suh, 2000; Veenhoven, 2000). Enhancement of quality of life is always amongst the foremost objectives in the course of social development; indicators of quality of life have been widely employed as measures of people's well-being, its achieved level, and changes over time. Extensive relevant literature in the past four decades reveals that researchers are not satisfied with works that assess the quality of human life and monitor the evolution of the societal environment in monetary terms alone (e.g., GNP). Researchers in general do not intend to relinquish conventional quantitative computation methods; yet, no universally accepted definition of 'quality of life', nor methods of its measurement have yet been established. Consequently, research on quality of life in most cases comes across two long-standing issues.

First, for the conceptualization of 'quality of life', there is no standard way of establishing the coverage of 'life'. Mainstream opinions in more advanced societies tend to differentiate 'quality of life' from 'standard of living'. Standard of living refers to the level of achieved satisfaction in basic materialistic needs. In addition to life chances and satisfaction in basic physiological needs, quality of life also covers satisfaction in emotional needs, such as being satisfied with freedom, justice, and opportunities for the complete development of individual capabilities. Therefore, quality of life research is concerned with an extensive range of topics, amongst which are: individual physical and mental health, well-being, satisfaction, family, work, housing, social relations, political and cultural lives, social ethics, and others. Consequently, researchers have never arrived at any consensus in the selection and weighting of indices in empirical quality of life studies.

Second, views on how 'quality' should be assessed are rather diverse. Quality implies value judgments and ranking; consequently, quality of life might be ranked from high to low, and from improving to deteriorating. Theoretically, the ranking of quality should allow for longitudinal or cross-community comparisons, and conclusions such as "the quality of life in community X has been improved in the past decade", or "the quality of life in community A is better than that in community B". Yet, there are no general rules governing the selection of 'judges' in the process of making the said value judgments. Hence, comparisons between communities or periods often prove difficult.

In general, quality of life studies can be grouped under two distinct orientations – the 'grass roots' approach or 'testimonial' model, and the 'means to quality of life' approach or 'ascriptive' model (Harwood, 1976; Shye, 1989). The 'grass roots' approach relies on people's judgments of needs and satisfactions according to individual life experiences and expectations. Researchers regroup and simplify the collected public opinions, and then construct a subjective framework on quality of life. It focuses on individual subjective feelings (such as degrees of satisfaction), in general and in specific life domains. Some representative studies of this orientation include the works of Andrews and Withey (1976), Campbell et al. (1976), and that of Campbell (1981). The model of Andrews and Withey takes both (1) values and criteria (for instance, the desires for success, safety, and an enjoyable life), and (2) conditions of life domains or role settings (for instance, work and family life) into consideration. It is assumed that these two sets of variables interact and affect an individual's perceived quality of life. A more comprehensive measurement of this kind has been developed more recently by the World Health Organization (1995): the Quality of Life Measure – WHOQOL-100 – takes account of 100 quality of life items.

The 'means to quality of life' approach relies on the expertise of the researchers. They define and analyze the needs of the people and decide accordingly the resources and means through which the quality of life of a particular population might be

enhanced or otherwise under different conditions. In other words, inquiring into resources and objective conditions at individual, community, or societal levels constitutes a measure of quality of life. Elements being included in the measurement of quality of life and selections of indicators vary significantly amongst researchers. Examples of simple measures of quality of life include the Physical Quality of Life Index (which comprises literacy rate, infant mortality, and life expectancy) developed by Morris (1979) for the US Overseas Development Council, and the Human Development Index (which comprises life expectancy, educational level, and GDP) adopted by the United Nations (United Nations Development Programme, 2000). One example of a more complex index is the Index of Social Progress (Estes, 1998), which is composed of eleven sub-indices (education, health, women's status, national defense, economy, population, geography, political stability, political participation, cultural difference, and welfare) which encompass 44 indicators.

In the early 1980s, Bubolz et al. (1980) proposed a 'human ecological' approach which stressed the effects of interactions between individuals and environmental resources (including resources from natural, human constructed, and human behavioral environments) on the quality of life. Taking human values as benchmarks, Diener (1995) designed a composite quality of life index – the Combined QOL Index. The index incorporates both objective and subjective measures, which include basic physical needs, physicians per capita, suicide rate, subjective well-being, literacy rate, college/university attendance, gross human rights violation, income inequality, deforestation, major environmental treaties, homicide rate, monetary saving rate, purchasing parity power, and per capita income. More and more studies tend to agree on the importance of mutual influences between objective environmental conditions and the subjective feelings of individuals, and argue for the integration of objective and subjective indicators in assessing people's social progress and well-being, although there is no general consent about the principles that should be followed in the construction of these types of integrated indices.

Researchers in Hong Kong are also aware of the importance of studies on quality of life in the enhancement of people's well-being. A number of local studies have contributed to the knowledge and assessment of the ever changing environmental conditions and the quality of life in Hong Kong. Among the prior work carried out by social scientists, two recent projects can represent the development of quality of life studies in Hong Kong. (1) The Hong Kong Institute of Asia-Pacific Studies (HKIAPS) of The Chinese University of Hong Kong launched the 'Indicators of Hong Kong Social Development' project in 1988. Since then, data on social development have been collected by sample surveys every two years (except for an interval of three years between 1990 and 1993). (2) At the turn of the century, the Hong Kong Council of Social Service (HKCSS) developed an index, the 'SDI-2000', to measure the social development in Hong Kong.

The 'Indicators of Hong Kong Social Development' surveys conducted by HKIAPS employed subjective indicators which are based on the respondents' subjective perceptions and evaluations of their lives and experiences. Drawing on data collected in the surveys, two groups of the HKIAPS project members independently assessed the quality of life in Hong Kong. The first group analyzed the responses to individual questionnaire items relating to the subjective well-being of the respondents. The findings indicate that Hong Kong Chinese are more satisfied with their own personal lives than with societal conditions. The subjective well-being of respondents declined after 1995, although they are still generally satisfied with various aspects of their personal lives. In 1995, the majority of respondents felt that their standard of living was rising and they were optimistic about further improvements in the near future; yet, in 2001, nearly half of the respondents viewed the economic situation as being unsatisfactory and fewer than half of the respondents assessed their life as a whole in positive terms. In addition, as compared to their confidence in the national future, their confidence in the territory's future was significantly lower. It was also found that Hong Kong people considered good health, peace of mind, and money as the most important

ingredients for a happy life; they had a strong desire for a better living environment and put great emphasis on education, considering it to be a major key to success (Wan and Wong, 1991; Wan, 1992, 1995, 1997, 2003). Employing the same set of questionnaire items, the second group examined the mean self-reported satisfaction level of individual life domains and attempted to develop a composite index to reflect changes in quality of life over the period from 1990 to 1997. To construct the global well-being index and the two sub-indices (the personal well-being index and the societal well-being index), Shen and Lai employed factoring (principal component) and optimal scaling methods instead of direct scaling in order to provide estimates for missing values and to increase the usable sample size. The constructed global well-being index indicates that the quality of life in Hong Kong declined from 1988 to 1995 and rebounded in 1997. For the economically inactive population, the rise and fall were more obvious. It was also found that the personal well-being index was more robust to the changes and only fluctuated very slightly with the global trend. On the other hand, the societal well-being index showed more obvious changes over time (Shen and Lai, 1997, 1999).

Unlike the HKIAPS indices, the social development index (SDI-2000) developed by the HKCSS relies on objective indicators which are based on measurements of observable conditions of social life. The basic SDI covers 14 sectors of development, which encompass 47 social, political, and economic indicators. In addition to weighted SDI scores which evaluated the overall social conditions and changes in Hong Kong between 1981 and 1998, HKCSS employed another 31 indicators to monitor social development patterns among women, the elderly, low income households, youth, and children. The SDI scores demonstrate steady and substantial advances in social development in the period, in particular, between 1991 and 1996. Among the 14 sectors of development, the performance of 10 sectors (science and technology, education, art and entertainment, internationalization, health, personal safety, strength of civil society, political participation, housing, crime, and public safety) was impressive, yet three

sectors (economic, sports, and environmental quality) were making very slow progress, and one sector (family solidarity) was deteriorating. In addition, the social performance of women and the elderly was improving while that of low income households, youth, and children was in decline (The Hong Kong Council of Social Service, 2000).

It is undeniable that the studies mentioned above contribute significantly to knowledge of the quality of local life, yet they either rely solely on the respondents' subjective perceptions and evaluations of their lives and experiences (the indicators of Hong Kong social development surveys), or are based exclusively on objective measures of observable conditions of social life (SDI-2000). Their difference in approach leads to very obvious contradictory findings: the global well-being index of Shen and Lai depicts a downward trend between 1988 and 1995 while the SDI-2000 displays a continuous improvement between 1981 and 1998. Apparently, the unpredictability of subjective sentiment towards a particular objective condition is the major cause of such a disagreement between observations. Although researchers are generally in agreement that mutual influences between objective environmental conditions and subjective feelings of individuals are important and should be taken into consideration in the process of index construction, thus far an integrated index that incorporates both objective and subjective measures and continuously monitors changes in the quality of life in Hong Kong is still absent. In view of this, the Faculty of Social Science of The Chinese University of Hong Kong compiled the CUHK Hong Kong Quality of Life Index in 2003 to serve as an objective, comprehensive, and analytical tool to examine the quality of life in Hong Kong. The Index is released annually at the end of the year.

CUHK HONG KONG QUALITY OF LIFE INDEX

Objectives

The objectives of the CUHK Hong Kong Quality of Life Index are to: (1) measure and monitor the quality of life in Hong

Kong in the 21st century; (2) engage relevant parties in promoting the quality of life in Hong Kong; (3) provide policy-makers and the community with useful statistics on the quality of life in Hong Kong; (4) draw public attention to the issue of quality of life.

Composition

The CUHK Hong Kong Quality of Life Index is more comprehensive than other indices developed in local studies. It is a composite index incorporating both objective and subjective measures and consists of 21 indicators in three sub-groups, namely, the socio-cultural sub-index, the economic sub-index, and the environmental sub-index. The largest sub-group, the socio-cultural sub-index (10 indicators), is also the most multifaceted sub-group; it encompasses vital statistics, health statistics, press freedom statistics, political statistics, and crime statistics. The economic sub-index (seven indicators) covers statistics on employment, wages, the property market, public attitudes towards economic conditions, and education. The environmental sub-index (four indicators) comprises measures of air quality, water quality, noise level, and solid waste recycling. Hence, amongst the three sub-groups, the socio-cultural sub-index bears the heaviest weight in the composite index, while the environmental sub-index carries the lightest. These sub-indices allow for in-depth examination of important domains of public concern, while the composite index monitors the overall quality of life. (See Appendix A for grouping and operational definitions of the indicators.)

The indicators take in data collected in representative sample surveys and official statistics. A wide range of important life domains, including health, education, safety, freedom, housing, employment, and environmental quality are covered. Scores are either measurements at interval level or obtained by appropriate scaling methods. In other words, the indicators are selected according to their coverage, measurability, representativeness, and importance to the quality of life in Hong Kong.

Among the 21 indicators, six are compiled by the Faculty of Social Science of The Chinese University of Hong Kong, namely, the stress index, the general life satisfaction index, the press freedom index, the press criticism index, the government performance index, and the index of current economic conditions. These six indices are measures of individuals' subjective feelings.

Four indices compiled by the Faculty draw on survey data collected in August 2002 and August 2003. In the surveys, the target population was adults aged 18 and above, and the data were collected through telephone interviews (computer assisted telephone interviews), employing identical structured questionnaires. Data on stress, general life satisfaction, press freedom, and government performance were collected from probability samples of Hong Kong residents ($n = 1002$ in the 2002 survey, and $n = 1004$ in the 2003 survey). The response rates were 45.2 percent and 43.2 percent, respectively. The margins of error are within ± 3.01 percent and ± 3.09 percent, respectively, at the 0.95 confidence level.

The year 2003 can be regarded as the worst year for Hong Kong since its reversion to China in 1997. It suffered not only a period of economic slowdown, but also an outbreak of Severe Acute Respiratory Syndrome (SARS) in the Spring of 2003, in addition to the tense political pressure due to the legislation of Article 23 of the Basic Law which was concerned with national security and was seen by many Hong Kong people as a threat to their personal freedom. All the discontent culminated in the mass demonstration of 500 000 people on July 1. The event proved to be significant in the development of Hong Kong thereafter. It led to the postponement of the enactment of Article 23, the resignation of the Secretary of the Security Bureau of Hong Kong, and the re-organization of the SAR Government's Executive Council.

The survey on stress, press freedom, government performance, and general life satisfaction was conducted in August 2003, one month after the July 1 demonstration during which many people had vented their anger. After the demonstration, the government also became more responsive to people's demands despite being shocked by the event.

Against this background, the survey showed that Hong Kong people in general considered that stress, press freedom, government performance, and their general satisfaction with life had all improved slightly compared with their situation one year earlier. Overall, the 'sense of triumph' felt by most Hong Kong people and the increased responsiveness of the HKSAR government after the July 1 demonstration might have contributed to the improved performance of these four socio-cultural sub-indices as well as the press criticism sub-index.

Information on press criticism was drawn from results of content analysis. In this analysis, the news reported by six local newspapers from August 2001 to July 2003 was sampled by the 'Constructed Sample Week' method. Each day from Monday to Saturday was randomly selected to construct a sample week in each month. After sampling all the newspapers, the contents were analyzed according to their news categories and major geographical locus of concern to measure the extent of press criticism of the Hong Kong Government, the PRC Government, and Hong Kong big business. Fifty samples were analyzed by all coders to determine the inter-coder reliability, which was above 70 percent for all key variables.

The index of current economic conditions is derived from the Quarterly Survey of Consumers that is conducted by the Department of Economics at The Chinese University of Hong Kong. Each quarter, the Department of Economics carries out a minimum of 500 telephone interviews (random samples). The respondents are asked to answer 10 questions, each of which represents various aspects of consumer expectations. Computation methods of these six indices are detailed in Appendix B.

The data on the remaining 15 indicators are obtained from public sources, which include the annual reports of the HKSAR Census and Statistics Department and those of the HKSAR Health Department (for vital statistics, crime statistics, and physical health statistics, etc.), and the quarterly reports of the HKSAR Census and Statistics Department (for wages, price indices, inflation rates, etc.). They are measures of objective environmental conditions. (See Appendix C for sources of specific statistics.)

Taking the year 2002 as the base year of the study, the CUHK Hong Kong Quality of Life Index of 2002 is 100 (the sum of 21 indicators each carrying a base QOL value of 4.76). If the index of a year is above 100, it means that the quality of life in Hong Kong in that year is better than that in 2002. If it is below 100, it reveals that the quality of life in Hong Kong in that year is worse than that in 2002. If the index is 100, it indicates that the quality of life in Hong Kong in that year is the same as that in 2002.

FINDINGS OF THE CUHK HONG KONG QUALITY OF LIFE INDEX 2003

According to the first CUHK Hong Kong Quality of Life Index released in November 2003, the preliminary score of the index of 2003 is 103.26 (See Table I). All three sub-indices on sectorial performance (socio-cultural, economic, and environmental sub-indices) are slightly higher than those in 2002, indicating that in general the quality of life in Hong Kong has improved slightly since 2002.

Indicators of performance in different life domains are detailed below.

Socio-cultural sub-group

1. **Standardized Mortality Rate:** The standardized mortality rates, which are calculated by removing the effect of population composition, show that the Hong Kong population has the benefit of a stable and very low mortality (< 4.00 per 1000 population). It is anticipated that socio-economic development and medical advancement will further reduce mortality, which is already among the lowest in the world, to a lower level in the years to come (Census and Statistics Department, 2002).
2. **Life Expectancy at Birth:** The life expectancies at birth for both sexes (84.83 for females and 78.84 for males) are comparable to economically advanced countries such as Sweden, Switzerland, and Japan. It is expected that the life expectancy at birth will increase by 4.1 for males and 3.8 for

TABLE I
CUHK Hong Kong Quality of Life Index

Indicators	Base year	Base rate	Base QOL value	Current year	Current rate	Percent change	QOL impact	QOL 2003
Socio-cultural sub-index								
1. Standardized Mortality Rate (per 1000 standard population)	2002	3.70	4.76	2003	3.70*	0.00%	NIL	4.76
2. Life Expectancy at Birth	2002	84.70 (F), 78.70 (M)	4.76	2003	84.83* (F), 78.84* (M)	0.17%	POS	4.77
3. Public Expenditure on Health as a Proportion of the GDP	2002	2.70	4.76	2003	2.60*	-3.70%	NEG	4.59
4. Notification Rate of Notifiable Infectious Diseases (per 1000 population)	2002	3.73	4.76	2003	2.40*	-35.66%	POS	6.46
5. Stress Index	2002	100.00	4.76	2003	88.75	-11.25%	POS	5.30
6. General Life Satisfaction Index	2002	100.00	4.76	2003	100.68	0.68%	POS	4.79
7. Press Freedom Index	2002	100.00	4.76	2003	101.22	1.22%	POS	4.82
8. Press Criticism Index	2002	100.00	4.76	2003	103.75	3.75%	POS	4.94
9. Government Performance Index	2002	100.00	4.76	2003	103.23	3.23%	POS	4.92

10. Overall Crime Rate (per 1000 population)	2002	11.18	4.76	2003	11.21*	0.26%	NEG	4.75
Socio-cultural composite			47.62					50.10
Economic sub-index								
11. Housing Affordability Ratio (Annual Average of Affordable Property Prices)	2002	4.68	4.76	2003	4.20*	-10.24%	POS	5.25
12. Rental Index	2002	83.41	4.76	2003	73.80*	-11.52%	POS	5.31
13. Unemployment Rate	2002	7.34	4.76	2003	8.13*	10.78%	NEG	4.25
14. Index of Current Economic Conditions	2002	76.55	4.76	2003	80.90*	5.68%	POS	5.03
15. Real Wage Index	2002	117.53	4.76	2003	117.25*	-0.23%	NEG	4.75
16. Public Expenditure on Education as a Proportion of the GDP	2002	4.10	4.76	2003	3.80*	-7.32%	NEG	4.41
17. Age Participation Rate for First-Degree Programs and Postgraduate Programs in Local Universities	2002	17.04	4.76	2003	17.70	3.87%	POS	4.95
Economic composite			33.33					33.95
Environmental sub-index								
18. Air Index	2002	48.00	4.76	2003	42.00*	-12.50%	POS	5.36
19. Water Index	2002	74.40	4.76	2003	73.50*	-1.21%	NEG	4.70

TABLE I
Continued

Indicators	Base year	Base rate	Base QOL value	Current year	Current rate	Percent change	QOL impact	QOL 2003
20. Noise Index (per 1000 population)	2002	1.84	4.76	2003	2.11*	14.81%	NEG	4.0-621.
Recycle Rate of Municipal Solid Waste	2002	36.06	4.76	2003	38.61*	7.07%	POS	5.10
Environmental composite			19.05					19.22
QOL Composite index			100.00					103.26

* Forecasted figures

females over the next 30 years, owing to a further reduction in mortality (Census and Statistics Department, 2002).

3. **Public Expenditure on Health as a Proportion of the GDP:** As a result of the government's commitment to lowering the budgetary deficit in the next few years, public expenditure on health as a proportion of the GDP is forecasted to drop this year (2.60 percent). This figure is expected to be even lower in 2004 due to a combination of tighter fiscal policy and the economic recovery.
4. **Notification Rate of Notifiable Infectious Diseases:** Medical advancement and effective surveillance systems contribute to the low notification rates of 27 notifiable infectious diseases. The rates have declined steadily to a relatively low level in the past decade. The rate for 2003 remains low (2.40 per 1000 population) regardless of the outbreak of SARS early in the year.
5. **Stress Index:** Hong Kong people have become less stressed as compared to previous years. Nevertheless, people who show some symptoms of stress still significantly outnumber those who do not. Their proportions in the sample mark a gap of 17.96 percent.
6. **General Life Satisfaction Index:** There is no significant difference in proportion (1.03 percent only) between those who feel satisfied with life and those who do not. However, Hong Kong people in general considered their general satisfaction with life to be improved slightly compared with their situation one year earlier. It is obvious that life satisfaction cannot normally be improved much in a year's time, and the improvement from 2002 was only 0.7 percent for Hong Kong people.
7. **Press Freedom Index:** This sub-index, which tapped the subjective impression of respondents rather than the objective media contents as in the sub-index of press criticism, showed only a 1.2 percent improvement. Yet, it is noteworthy that people in Hong Kong generally feel that they can speak freely. The proportion of respondents who feel able to speak freely is greater (39.98 percent) than those who think otherwise.

8. Press Criticism Index: The difference between the proportions of critical and uncritical reporting by the press on the Hong Kong Corporation, the HKSAR government, and the People's Republic of China Government is minimal (6.00 percent). Nevertheless the sub-index recorded more than 3 percent of improvement from 2002.
9. Government Performance Index: The majority of Hong Kong people are still not satisfied with the performance of the HKSAR government. There were 27.45 percent more respondents who indicated dissatisfaction than those who indicated satisfaction. However, the 'sense of triumph' of most Hong Kong people and the increased responsiveness of the government after the July 1 demonstration might have contributed to the improvement of more than 3 percent as compared to one year earlier.
10. Overall Crime Rate: Hong Kong people enjoy a relatively low overall crime rate. The overall crime rates showed a trend of continuous decline between 1992 and 2002 (Census and Statistics Department, 2003). Although the rate for 2003 (11.21 per 1000 population) is slightly higher than that for 2002, there is no clear evidence indicating an upturn in the overall crime rate.

Economic sub-group

11. Housing Affordability Ratio: The housing affordability index (currently 4.20) is expected to continue to decline, mainly due to a large reduction in house prices in the first three quarters of 2003. While a deflation in property prices is painful for some, it obviously makes housing more affordable for others. As regards the continuous downward trend of Hong Kong's house prices, it may have reached bottom in the third quarter of 2003. We expect a sharp rebound in property prices in 2004 as the Hong Kong economy heads for recovery, implying that housing will be less affordable next year.
12. Rental Index: The 2003 estimate (73.80) shows that the decline in the rental index continues. The outbreak of SARS, along with the relatively sluggish economy in the

first half of 2003, are the main reasons for the weak performance of the 'tenants' market'. We anticipate an improvement in the 'tenants' market' in 2004, indicating an increase in rental index.

13. **Unemployment Rate:** The unemployment rate is likely to reach a historical high (8.13 percent) in 2003. A persistent increase in the unemployment rate for the past two years signals a serious deterioration in Hong Kong's labor market. However, the upward trend in the unemployment rate seems to be nearing an end, as the local economy is expected to display a speedy turnaround towards the end of 2003. The likely improvement in the domestic economy in the near future will give a boost to the local labor market that, in turn, will lead to a decrease in the unemployment rate in 2004.
14. **Index of Current Economic Conditions (ICEC):** The forecast for the ICEC this year is 80.90, up from 76.55 in 2002. Both households' financial conditions and consumer attitudes are expected to improve due to a sharp rebound in the local stock market in the second half of 2003. If the bullishness of the stock market can be extended to 2004, we are likely to see an upsurge in the ICEC next year.
15. **Real Wage Index:** The estimate of the real wage index for 2003 is 117.25, a marginal dip from 117.53 in 2002. We anticipate that real wages will not have a sharp turnaround next year unless the profitability of local firms shows a substantial improvement in 2004.
16. **Public Expenditure on Education as a Proportion of the GDP:** After reaching a new high (4.10 percent) in 2002, the public expenditure on education as a proportion of the GDP is expected to drop to 3.8 percent this year. This downtrend may continue for the next few years due to the reasons mentioned in (3).
17. **Age Participation Rate for First Degree Programs and Postgraduate Programs in Local Universities:** Subsequent to the expansion of tertiary education and the declining population of the younger age groups, the participation rates have improved in recent years. Yet, being an indicator

of economic development, the current rate for Hong Kong (17.70 percent) is still below the World Bank standard for a First World industrial economy.

Environmental sub-group

18. **Air Index:** Like other large cities in this world, Hong Kong has suffered from a deterioration in air quality (currently at 48.00 level). The problem is a combination of factors including high population density, high rise buildings that hinder the air circulation at street level, and a high concentration of vehicles.
19. **Water Index:** The overall water quality in Hong Kong has improved in recent years (74.40 percent), but it is not enough for a clean bill of health because of the large population that translates into heavy environmental pressure.
20. **Noise Index:** A score of 1.84 per 1000 population in 2003 indicates that Hong Kong is probably one of the noisiest cities in the world. Traffic and construction are two major sources of noise pollution. It is an annoyance and a potential threat to public health. The problem is expected to be worse in the coming years.
21. **Recycle Rate:** Municipal solid waste (MSW) refers to domestic, commercial, and industrial wastes collectively. In 2002, Hong Kong recovered about 1.96 million tonnes of MSW that represented about 36.28 percent of the total MSW arising in the city. The rate was comparable to many major developed countries. The main kinds of recyclable wastes recovered included paper, plastics, and ferrous metal, which accounted for over 90 percent of the waste recovered.

Compared with the data from 2002, among 21 indicators, 12 indicators are better and seven are worse, while two remain unchanged. Six of the ten indicators in the socio-cultural sub-group have improved in 2003; they are the notification rate of notifiable infectious diseases, the stress index, the general life satisfaction index, the press freedom index, the press criticism index, and the government performance index. Two indicators,

the standardized mortality rate and life expectancy at birth, show no obvious changes; and the remaining two indicators, public expenditure on health as a proportion of the GDP and the overall crime rate, are worse.

Among the seven indicators in the economic sub-group, four indicators show an improvement in 2003; they are the housing affordability ratio, rental indices, the index of current economic conditions, and the age participation rate for first-degree programs and postgraduate programs in local universities. At the same time, three indicators, the unemployment rate, real wage indices, and public expenditure on education as a proportion of the GDP, show deteriorations.

Whilst the majority of indicators in the above two sub-groups demonstrate a general trend of improving performance, indicators in the environmental sub-group display divergence. Two indicators, the air index and the recycle rate of MSW, signal better environmental conditions, while the other two indicators in this sub-group, the water index and the noise index, show different trends.

SUMMARY AND DISCUSSION

Among the 21 quality of life indicators, six indicators illustrate that Hong Kong performs as well as many economically advanced societies in certain life domains: (1) the standardized mortality rate is among the lowest in the world; (2) Hong Kong people enjoy a long life span and the life expectancies at birth for both sexes are lengthening; (3) the notification rate of notifiable infectious diseases has declined steadily to a relatively low level; (4) the press freedom index indicates that people generally feel that they can speak freely; (5) the overall crime rate remains at a relatively low level; and (6) the recycle rate of recovered solid wastes is comparable to those of major developed countries.

In some other life domains, Hong Kong has made noticeable progress in the past decade. However, as a result of the government's pledge to lower the budgetary deficit, it is expected that the amount of public expenditure on health as a proportion of the GDP, and the amount of public expenditure on

education as a proportion of the GDP will be lower in the next few years. Thus, provision of services in these two areas is likely to be affected.

Hong Kong is making progress, although it may be slight, in a number of life domains. Nevertheless, the well-being of the Hong Kong people relies on further improvement in these domains: (1) the stress index indicates that Hong Kong people are less stressed in 2003, yet the people who show some symptoms of stress still outnumber those who do not; (2) considering their lives in general, a significant proportion of Hong Kong people are not satisfied; (3) the press criticism index suggests that reporting in the local press is probably not critical enough; (4) the majority of Hong Kong people are not satisfied with the government's performance; (5) Hong Kong people have a more optimistic view of current economic conditions in 2003, but further improvement depends on the recovery of the Hong Kong economy; (6) the age participation rate for first-degree programs and postgraduate programs in local universities is still not up to the standard of advanced economies; and (7) water quality is improving, but further improvement is necessary.

In 2002 and 2003, deflation and lower prices made housing more affordable, and tenants enjoyed lower rents. However, the positive effects of the trends are only beneficial to some social groups; in addition, the trends are expected to turn around in 2004.

Hong Kong people are facing deteriorating living conditions in some aspects: (1) the unemployment rate is high in 2003, although it is expected to fall in 2004; (2) the real wage index lingers at a relatively low level as compared to the previous few years and a rapid augmentation seems unlikely; (3) air quality is deteriorating and there are no easy ways to eliminate factors that cause pollution; and (4) Hong Kong is one of the noisiest cities in the world and the situation is expected to worsen. Therefore, special efforts have to be made in order to reverse the trends in these areas.

The CUHK Quality of Life Index shows the quality of life in Hong Kong and trends of its development. The sub-indices

facilitate assessments of performance in various life domains and the identification of areas which require substantial improvement; therefore, they provide useful references to policymakers and may serve as an important basis for evidence-based policy formulation.

The CUHK Quality of Life Index can be considered an improvement in two aspects when compared to prior work in Hong Kong. First, adopting an integrative approach, the CUHK Quality of Life Index encompasses both subjective and objective indicators and makes use of multiple types of data. Indicators which are based on objective measurements of observable social conditions are comparable to those included in the SDI-2000 of HKCSS, and indicators which are based on the respondents' subjective perceptions and evaluations are parallel to those covered by the HKIAPS surveys. Second, it is important to keep trend data across time. The CUHK Quality of Life Index has the advantage of maintaining regular updating.

At present, the CUHK Quality of Life Index is released annually at the end of the year. The compilation and release of the index can easily be accomplished bi-annually or even quarterly in the future, subject to availability of resources. Another possible extension of the index is to incorporate indicators that keep track of the quality of life in Hong Kong families, as family life impacts significantly on individual well-being.

ACKNOWLEDGMENTS

The research work on the CUHK Hong Kong Quality of Life Index was substantially supported by a grant from The Chinese University of Hong Kong.

Many members of the Faculty of Social Science, in particular, members of the Faculty's Sub-committee for the Celebrations of the 40th Anniversary of The Chinese University of Hong Kong, contributed to the development of the CUHK Hong Kong Quality of Life Index at various stages.

Special thanks go to Ms. Rachel Chan and Ms. Carmen Cheng, who have assisted us in the completion of this project.

APPENDIX A

Composition of the CUHK Hong Kong Quality of Life Index

Socio-cultural sub-index

1. Standardized mortality rate (per 1000 standard population^a) refers to the number of deaths per 1000 standard population
2. Life expectancy at birth (in years) refers to the life expectancy at birth for males and females
3. Public expenditure on health as a proportion (in percent) of the GDP
4. Notification rate of notifiable infectious diseases (per 1000 population) refers to the number of notified infectious diseases per 1000 population
5. Stress index refers to the stress that the Hong Kong people are facing (base rate = 100)
6. General life satisfaction index refers to the degree of satisfaction of Hong Kong people with their current lives (base rate = 100)
7. Press freedom index refers to the degree of press freedom in Hong Kong (base rate = 100)
8. Press criticism index refers to the frequency of criticisms by the press of the Hong Kong Corporation, the Hong Kong SAR Government, and the People's Republic of China Government (base rate = 100)
9. Government performance index refers to the degree of satisfaction of Hong Kong people with the performance of the Hong Kong SAR Government (base rate = 100)
10. Overall crime rate (per 1000 population) refers to the total number of violent and non-violent crimes reported per 1000 population

Economic sub-index

11. Housing affordability ratio refers to the annual average of affordable property prices (i.e. average property price times 39.9 sq. feet, divided by monthly medium income times 12)
 12. Rental index refers to the rental index for the Hong Kong property market
 13. Unemployment rate refers to the seasonally adjusted unemployment rate (in percent)
 14. Index of current economic conditions refers to the public attitude towards economic conditions in Hong Kong
 15. Real wage index^b refers to the real wages for employees up to supervisory level (excluding managerial and professional employees) in all selected industry sectors
 16. Public expenditure on education as a proportion (in percent) of the GDP
 17. Age participation rate for first-degree programs and postgraduate programs in local universities (in percent)
-

APPENDIX A

Continued

Environmental sub-index

18. Air index refers to the daily air pollution index
 19. Water index refers to the percentage of rivers in Hong Kong categorized as “good” and “excellent” by the monitoring station
 20. Noise index (per 1000 population) refers to the number of noise complaints received by the Environmental Protection Department and the Police per 1000 population
 21. Recycle rate of municipal solid waste refers to the recycle rate (in Percent) of solid waste from households and from commercial and industrial sources
-

^a Standardized mortality rate is compiled based on the world standard population published in the 1997–1999 World Health Statistics Annual.

^b As from 2001, the real wage index is derived by deflating the nominal wage indices by the 1999/2000-based CPI (A). To facilitate comparison, real wage index prior to 2001 has been re-compiled using the 1999/2000-based CPI (A)

APPENDIX B
Indices compiled by the Faculty of Social Sciences, The Chinese University of Hong Kong

Index	Indicator	Measurement (percentages of positive and negative answers)
Stress index	Being able to concentrate on whatever one is doing over past few weeks	<i>NN</i> = much worse than usual <i>N</i> = worse than usual <i>P</i> = same as usual <i>PP</i> = better than usual
	Feeling on the whole that one is doing things well over past few weeks	<i>NN</i> = much less than usual <i>N</i> = less than usual <i>P</i> = same as usual <i>PP</i> = more than usual
	Feeling capable of making decisions about things over past few weeks	<i>NN</i> = much more than usual <i>N</i> = more than usual <i>P</i> = same as usual <i>PP</i> = not at all
	Being able to enjoy one's normal day-to-day activities over past few weeks	
	Being able to face up to one's problems over past few weeks	
	Feeling reasonably happy, all things considered, over past few weeks	
	Losing much sleep through worry over past few weeks	
	Feeling constantly under strain over past few weeks	
	Feeling one couldn't overcome one's difficulties over past few weeks	
	Feeling unhappy and depressed over past few weeks	
Losing confidence in oneself over past few weeks		

APPENDIX B
Continued

Index	Indicator	Measurement (percentages of positive and negative answers)
General life satisfaction index	Thinking of oneself as a worthless person over past few weeks	NN = strongly disagree N = disagree P = agree PP = strongly agree
	Overall index = $\Sigma[(NN_i + \frac{1}{2}N_i) - (PP_i + \frac{1}{2}P_i) + 100]/12$	
	Life being close to ideal in most ways	
	Conditions of life are excellent	
	Being satisfied with life	
Having secured the most important thing in life Would change almost nothing in case of being able to live one's life over	Overall index = $\Sigma[(PP_i + \frac{1}{2}P_i) - (NN_i + \frac{1}{2}N_i) + 100]/5$	
	When one comments on current affairs, the extent to which one can speak one's mind freely	NN = not at all N = to some extent PP = to full extent P = to large extent
Press freedom index	When one criticizes the HKSAR government, the extent to which one can speak one's mind freely	
	When one criticizes the PRC government, the extent to which one can speak one's mind freely	
	When one criticizes big business, the extent to which one can speak one's mind freely	

APPENDIX B
Continued

Index	Indicator	Measurement (percentages of positive and negative answers)
	The score individual respondent gives to the press freedom of Hong Kong on a scale from 0 to 10	$NN = 0-2$ $N = 3-4$ $P = 6-8$ $PP = 9-10$
	Overall index = $\Sigma[(PP_i + \frac{1}{2}P_i) - (NN_i + \frac{1}{2}N_i) + 100]/5$	
Press criticism index	HKSAR government criticism index PRC government criticism index HK corporation criticism index	$NN =$ uncritical $E =$ neutral $P =$ critical $PP =$ highly critical
Government performance index	Overall index = $\Sigma\{[(PP_i + P_i) - NN_i] + 100\}/3$ Satisfied with the performance of HKSAR government over the last six months	$NN =$ very unsatisfactory $N =$ unsatisfactory $P =$ satisfactory $PP =$ very satisfactory
	The score individual respondent gives to the performance of HKSAR government over the last six months on a scale from 0 to 10	$NN = 0-2$ $N = 3-4$ $P = 6-8$ $PP = 9-10$
	Overall index = $\Sigma[(PP_i + \frac{1}{2}P_i) - (NN_i + \frac{1}{2}N_i) + 100]/2$	

APPENDIX B
Continued

Index	Indicator	Measurement (percentages of positive and negative answers)
Index of current economic conditions	Would you say that you (and your family living there) are better off or worse off financially than you were a year ago?	<i>NN</i> = worse off <i>E</i> = the same <i>PP</i> = better off
	About the big things people buy for their homes such as furniture & refrigerator, stove, television, and things like that. Generally speaking, do you think now is a good or bad time for people to buy major household items?	<i>NN</i> = bad time <i>PP</i> = good time
	Overall index = $\Sigma[(PP_i - NN_i) + 100]/2$	

APPENDIX C
Indices obtained from public sources^a

Index	Source
Standardized mortality rate	Various issues of Annual Report of Department of Health
Life expectancy at birth	Various issues of Hong Kong Annual Digest of Statistics and Hong Kong in Figures, Census and Statistics Department
Public expenditure on health as a proportion of the GDP	Various issues of Hong Kong Annual Digest of Statistics, Census and Statistics Department www.budget.gov.hk
Notification rate of notifiable infectious diseases	Various issues of Hong Kong Annual Digest of Statistics, Census and Statistics Department Various issues of Annual Report of Department of Health
Overall crime rate (per 1000 population)	Various issues of Hong Kong Annual Digest of Statistics and Hong Kong Monthly Digest of Statistics, Census and Statistics Department
Housing affordability ratio	Various issues of Hong Kong Monthly Digest of Statistics and Quarterly Report of General Household Survey, Census and Statistics Department
Rental index	Rating and Valuation Department http://www.info.gov.hk/rvd/property/
Unemployment rate	Census and Statistics Department ^b
Real wage index	Census and Statistics Department ^c
Public expenditure on education as a proportion of the GDP	Various issues of Hong Kong Annual Digest of Statistics, Census and Statistics Department www.budget.gov.hk
Age participation rate for first-degree programs and postgraduate programs in local universities	University Grants Committee http://www.ugc.edu.hk
Air index	Air Quality Annual Report, Environmental Protection Department

APPENDIX C
Continued

Index	Source
Water index	Environment Hong Kong 2003, Environmental Protection Department
Noise index	Environment Hong Kong 2003, Environmental Protection Department
Recycle rate	Environment Hong Kong 2003, Environmental Protection Depart- ment

^a Official statistics for a particular year is usually obtainable from annual reports published in the year that follows. For example, the 2003 edition of *Hong Kong Annual Digest of Statistics* provides statistics up to year 2002. At the time the first CUHK Hong Kong Quality of Life Index was released, most official statistics for year 2003 were still unavailable. Therefore, forecasted figures derived from past trends were employed for the compilation of the provisional CUHK Hong Kong Quality of Life Index 2003

^b http://www.info.gov.hk/censtatd/eng/hkstat/fas/labour/ghs/labour1_index.html

^c http://www.info.gov.hk/censtatd/eng/hkstat/fas/wages/w_real_index.html

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QUALITY OF LIFE IN OLDER ADULTS: BENEFITS FROM CARING SERVICES IN HONG KONG*

(Accepted 25 February 2004)

ABSTRACT. Many older adults are in need of care. Therefore, older people would generally benefit from the use of caring services, notably including home care, residential care, nursing, and medical services. The contributory factors underlying caring services tend to be a caring perspective that aspires to sustain older people's social relationships and real-life involvement. To gauge the benefits from various social and health services, the present study relies on a large-scale survey of 3000 older adults in Hong Kong, using quality of life as a criterion. Results showed that an older adult who had used (ordinary or enhanced) home care services for a longer time turned out to have appreciably more improvement in quality of life. Besides, those who joined an interest group more frequently were higher in quality of life, including the health domain. On the other hand, frequent use of medical and meal-to-home services were signals that reflected problems detrimental to the older user's quality of life. Despite this, the quality of clinics or hospitals, as perceived by the older adult, was the most beneficial. As such, caring services that foster older adults' interests, cater to their health care needs, and embody quality can have principal contribution to their users' quality of life.

INTRODUCTION

Nursing services contribute an active part in sustaining and promoting older adults' quality of life via various health and social services. The nursing home, day care center, multiservice center, home care (especially enhanced home care), and other

*An earlier version of the paper appeared at the *International Conference on Quality of Life in a Global World*, 14-15 November, 2003, Chinese University of Hong Kong, Faculty of Social Science, Sha Tin, Hong Kong

services for elderly people rely on the regular input of nursing services to maintain their integral operation. Different kinds of social services also embody elements of health and social care compatible with nursing care. In all, the concept of care is crucial in bolstering older adults' quality of life. Most importantly, it meets older people's needs when their physical functioning and mental functioning are no longer as adequate as the state when they were young (Sugisawa et al., 1994; Schieman and Campbell, 2001). The emergence of chronic illnesses among older adults clearly indicates their need for care. Not surprisingly, older people's need and use of formal health and social services escalate with the increase in age (Thomas and Payne, 1998; Spitze and Ward, 2000).

To maximize the benefits of health and social care components in services for elderly people, knowledge about the contribution of the use and quality of the services, coupled with knowledge about the impact of care needs is essential. Attaining the knowledge is an objective of the present study, which examines the impacts of chronic illnesses, use, and quality of various health and social services on the older adult's quality of life. These impacts are of concern because of the (1) proliferation of various services for elderly people, and (2) paramount importance of taking care of older people's quality of life as an essential outcome for the services. Pertinent knowledge relating various services and their outcomes in quality of life is lacking because research rarely examines older people using different services, which form a unique mix in Hong Kong. Although evidence about the popularity of the services among older people and their families is abundant (Piercy and Blieszner, 1999), that about the absolute and relative effectiveness among the services is inadequate (Rose, 2002). Nevertheless, the perspective of caring suggests that the import of care as a guideline for the quality and effectiveness of the services to promote elders' quality of life. This proposition is a central theme for the present study. As such, services that are more concerned with nursing care would contribute more to the older user's quality of life.

Framework for the Study

A core proposition underlying the study assumes that caring services, equipped with a caring approach, promote the elder's quality of life. The nursing service and approach permeate various health and social services for elderly people, including that providing an outreach service to take care of older users at their homes and community (Ozawa and Tseng, 1999). Its perspective essentially upholds a relational stance in maintaining and promoting the elder's quality of life (Robinson, 1996). In this connection, the service professional would serve as a curious listener, compassionate stranger, nonjudgmental collaborator, and a mirror for the service user. Sustaining the user's sense of control is also an essential premise in the caring perspective (Forbes and Hoffart, 1998). Empowering the older user is therefore a philosophy of nursing (Lee et al., 1998). Another direction in the caring perspective is real-world theory, which posits that facilitating the older patient's relationships with their families, friends, and community is an essential means to promote his or her quality of life (Draper, 1997).

Quality of life

Quality of life is a concern having been attracting theoretical discourses for thousands of years. Essentially, hedonist, utilitarian, rationalist, formalist, humanist, and naturalist thoughts have described, prescribed, and proscribed the ways of living a quality life (Porter 1988; Ackerman et al., 1997). In research practice, a person's quality of life ultimately relies on his or her recognition and evaluation of experiences in life (Calman, 1987; Kutner et al., 1992; Bengtson et al., 1997). There is hardly a good objective substitute for the person's subjective experience. The subjective experience of quality of life, albeit abstract (Bengtson et al., 1997), necessarily draws on various forms of concrete experiences in various life domains (Lundberg and Thorslund, 1996). Common in the literature are those domains of accommodation, work, cultural activities, finance, friendship, physical health, self, family, and community (Norcross, 1990; Farquhar, 1994).

Besides, life experiences of quality can include being, doing, living, having, enjoying, and feeling of satisfaction or evaluation (Stewart and King, 1994; Ackerman et al., 1997). The combination of various experiences with various life domains creates a comprehensive concept of quality of life that subsumes life satisfaction, satisfaction with various life domain, self-esteem, self-actualization, physical, and mental health, which are common indicators of quality of life (Norcross, 1990; Stewart and King, 1994; George, 1998). Nevertheless, the existing measuring instrument (WHOQOL, Leung et al., 1997) does not build on the comprehensive theoretical framework and concentrates mostly on the hedonist component of quality of life, that is, concerning feelings of comfort and abstinence from pain. It ignores the humanist component of actualizing one's potentialities and the formalist-religious component of behaving in a virtuous, socially desirable way (Kurtz, 1988; Porter, 1988; Cheung, 1997). Empirically, the instrument attempts to demonstrate its validity by showing the convergence of quality of life in various domains. However, the attempt is problematic because quality of life is not a personality trait, but is a collection of protean life experiences (Saris, 2001). In other words, an overall quality of life is the weighted sum of quality in various life experiences. To adhere to the long tradition of theoretical discussion on quality of life, a comprehensive measure of quality of life is necessary for the present study.

Promoting an elder's quality of life is integral to the philosophy of community care (Seed and Kayer, 1994). Moreover, quality of life is an indicator of accountability of social services in general (Gibson, 1998). For monitoring purpose, the accepted wisdom regards on quality of life as an essential outcome indicator (Seed and Kayer, 1994; Gibson, 1998). Quality of life may be particularly relevant to aging people because of the prolongation of life (Ostir et al., 1999; Thompson et al., 2002). Accordingly, surviving in the late life is no longer the primary concern, given the medical advancement; rather, quality of life is more a concern for aging people (Liddle and McKenna, 2000).

The elder's quality of life, as derived from focus groups of the present study, covers the domains of cultural activities, work (including volunteering), accommodation, finance, friendship, health, self, family, and community. The domain of cultural activities taps those domains of leisure, recreation, interest, activities, and organization activities appearing in the West (Schalock et al., 1989; Norcross, 1990; Farquhar, 1994; Lundberg and Thorslund, 1996; Chan et al., 2002). Similarly, the work domain corresponds to the employment domain (Lundberg and Thorslund, 1996). The accommodation corresponds to the housing, residential, security, environment, home, material, and privacy domains (Clark and Bowling, 1989; Norcross, 1990; Pynoos and Regnier, 1991; Hughes, 1993; Farquhar, 1994; Lundberg and Thorslund, 1996; Chan et al., 2002). The finance domain corresponds to the economic resource, and property domains (Arnold, 1991; Lundberg and Thorslund, 1996). The friendship domain corresponds to community relationship, community involvement, support network, social functioning, social contact, and interpersonal relation domains (Schalock et al., 1989; Norcross, 1990; Arnold, 1991; Hughes, 1993; Farquhar, 1994; Stewart and King, 1994; Chan et al., 2002). The health domain corresponds to the health, nutrition, functioning, comfort, pain, energy, independence, symptom, ability, and mobility domains (Clark and Bowling, 1989; Norcross, 1990; Arnold, 1991; Kutner et al., 1992; Hughes, 1993; Farquhar, 1994; Stewart and King, 1994; Lundberg and Thorslund, 1996; Chan et al., 2002). The self-domain corresponds to the self, happiness, mental health, psychological well-being, and emotional functioning domains (Clark and Bowling, 1989; Arnold, 1991; Kutner et al., 1992; Hughes, 1993; Farquhar, 1994; Stewart and King, 1994). The family domain corresponds to the family and family relationship domains (Hughes, 1993; Farquhar, 1994; Lundberg and Thorslund, 1996). The community domain, concerning living in a society/world of peace and free of problems, such as unemployment, replicates that in the recent local study (Chan et al., 2002). This domain reflects older Chinese adults' communitarian orientation (Feldman, 1999) and generativity (Brody,

1999), that is, taking care of the young generation, including its employment status. Nevertheless, this domain reflects the dialectic perspective, which is concerned with profound mutual relationships among people's quality of life (Gerson, 1976). Thus, one's quality of life benefits from and contributes to the quality of life of the whole community. The community concern may be particularly germane to older (Kivnick and Jernstedt, 1996; Vaillant, 2002) and Chinese people (Lee, 1996).

Health and social services

Health and social services for elderly people examined in the present study include the (1) social center, (2) multiservice center, (3) day care center, (4) home help service, (5) home care and enhanced home care service, (6) hostel, (7) nursing home and other homes for elderly people, and (8) welfare service. Within the services, more fine-grained items under investigation include the (1) interest group, (2) meal service, (3) meal-to-home service, (4) traveling, (5) home cleaning service, (6) personal care service, (7) sport facilities, (8) volunteer service (9) medical service, and (10) nursing service (already discussed). These services have demonstrated various forms of effectiveness (not necessarily promoting quality of life) in past research.

The social center for elderly people has served elderly populations for a longer time than most of the other social services. It does not take nursing care as its major service emphasis. Instead, it is keen on providing recreational services, leisure and social activities for its users (Searle et al., 1998; Lawton et al., 2002). It appears to offer benefits in stress relief, social interaction, social integration, learning and empowerment, maintaining independence, upholding the self-concept, and increasing the sense of control among center goers (Searle et al., 1998; Walker et al., 1998). These benefits hinge on the fostering of optimal experience in the elder, in which the elder engages in activities at their own will, pace, and capacity that bring out the most of his or her potential and fulfillment (Walker et al., 1998). As such, satisfaction is likely to arise at the time of center attendance, which can spill over to foster leisure satisfaction and life satisfaction (Ragheb and Griffith, 1982; Russell, 1990).

Satisfaction with social life also likely evolves from social integration facilitated in the social center (Steinkamp and Kelly, 1987).

The multiservice center provides more nursing, personal care, and other services than the social center. Nursing care is more crucial among services offered in the multiservice center. Armed with these significant services, the multiservice center can fulfill its recreational and caring missions.

The day care center takes care of older people with disabilities and living in the community. Nursing care is a notable element in the center, which can offer thorough nursing care within its premises. In line with nursing care, the humaneness experienced in the center is one of its effective practices (Kirwin, 1991). The day care center plays an important role in community care (Griffin, 1993). It provides a protected, planning, and stimulating environment to sustain the social, physical, and mental well-being of center goers (Griffin, 1993). Social interaction and social integration within the center is a remarkable credit accruing to the center (Kirwin, 1991; Williams and Roberts, 1995). They are likely to lead to the consumer's satisfaction (Henry and Capitman, 1995). Besides, the day care center can generate new interests for older center goers (Hall, 1989).

The home help service provides an essential bundle of assistance to older people at their homes. It has proven to be the most effective form of service in the West (Davies et al., 1990; Elkan et al., 2001). As such, it serves to reduce the older user's risk of mortality and institutionalization. Its success tends to rest in the principle of four A's, availability, awareness, acceptance, and accessibility (Chapleski et al., 1997). Effective home help services therefore require a caring approach that is sensitive and responsive to older adults' needs.

The home care service instills a broader range of services to meet elders' needs thoroughly, including housekeeping, escort, personal care, informational, referral, educational, therapeutic, nursing, rehabilitative services (Feldman, 1999; Kane, 1999; Hawranik, 2002). In essence, it provides personal assistance to older people's living in their homes (Kane, 1999). It aspires to

strengthen older people's choice, relationship, and independence (Feldman, 1999; Woodruff and Applebaum, 1996). The home care service has proven to be effective in Western contexts (Wister, 1992; McNeil, 1995). Effective results would manifest in the older user's quality of life (Albert et al., 1997), notably reduction in distress (Riordan and Bennett, 1998). One key of its success tends to be the care recipient's freedom from exploitation, which stems from the nursing concern in the home care service (Kane and Kane, 1994). Besides, the home care service can appear as a partner to the service user, which is another clue to its success (Quinn, 1995). As such, it fulfills the nursing role in sustaining the user's quality of life. Home care and enhanced home care services are newer services growing rapidly (Egan and Kadushin, 1999; Bauld et al., 2000).

Residential services in the hostel and home for elderly people have not received much credit because of variation in the quality of the services (Eckert et al., 1999). Little is clear about the achievement of residential services (Davies et al., 1990). In the positive side, they can implement nursing care that satisfies older residents' care needs (Gibson, 1998). Besides, they can create a home-like environment that takes the best care of older residents (Eckert et al., 1999). These caring approaches can be the crux for the effective maintenance of older residents' quality of life.

The nursing home obviously implements much nursing care immensely. Nursing care is a notable objective in the operation of the nursing home (Gibson, 1998). On the other hand, there has not been much evidence in favor of the effectiveness of the nursing home in promoting older residents' quality of life. Instead, the credit of the nursing home appears to lie in its relief of informal caregivers' stress (Coe and Neufeld, 1999; Kramer, 2000). The nursing and other aged home can promote the older resident's quality of life through its thorough, around-the-clock care, in which nursing care plays a vital part (Kaye, 1992).

The welfare service primarily arranges financial support for older welfare recipients, with little practice of nursing care. Dependency on social welfare appears to have adverse effects on the older recipient, known as the pressure cooker effect

(Krause and Shaw, 2002). Accordingly, welfare recipients encounter heightened pressure stemming from their already poor financial conditions, the negative interaction with the welfare service, and social exclusion partly due to welfare dependency (Somerville, 1998).

Meal services for older people have proven to be effective, for meeting users' nutritional need (Davies et al., 1990). On the other hand, they are vulnerable to negative comments that regard them as too task-oriented, thus failing to be kind in dealing with users' needs (Sidenvall, 1999). The service obviously lacks a component and perspective of caring. This weakness would impair the integrity of the service, which in turn plagues the user's identity and hope. As such, the set menu and limited choices in the meal service would constrain the user's autonomy and decision that may best enhance his or her quality of life.

Volunteer participation is beneficial to the older participant, according to extensive research and theory. As such, it is a highly promoted activity, in accordance with government policy (Nathanson and Eggleton, 1993). Older people can be resources facilitating the quality of life of the older population and society (Dong, 1998; Wheeler et al., 1998). They are contributory to successful aging, rather than being dependent (Midlarsky and Kahana, 1994). The contribution involves enhancement of learning, development in various aspects, creativity, and connection with younger generations (Fischer and Schaffer, 1993). Besides, volunteering is an act of self-validation, demonstrating the worth of the older participant (Wilson and Musick, 1999). The older participant's social role and leisure life also benefit from volunteer participation. As such, volunteering appears to reduce the older participant's risk for mortality (Musick et al., 1999; Wilson, 2000), through enhancement of roles (Musick et al., 1999). The older adult's quality of life improves following volunteer participation (Jivovec and Hyduk, 1998; Wheeler et al., 1998). According to the caring perspective, volunteering would offer the greatest benefit when it meets the older adult's need, preference, and capability (Jivovec and Hyduk, 1998; Musick et al., 1999).

Use of facilities for physical exercise is helpful to the older user, according to abundant theory and research. Physical exercise contributes to the elder's prevention and rehabilitation of illnesses, physical, and mental problems (Strawbridge et al., 1993). Furthermore, it enhances the elder's strength and fitness (Holland et al., 2002), especially with regular and enduring practice (Porter et al., 2002). It is therefore an essential indicator of health behavior (Potts et al., 1992). The elder's quality of life would benefit from his or her active practice of physical exercise (Kim et al., 1999). As such, the elder's health, functional ability, and self-efficacy can improve with engagement in physical exercise (Strawbridge et al., 1993; McAuley and Katula, 1999; Atienza, 2001).

The medical service can be a source of satisfaction for the older user (Beisecker, 1996). Probably due to the effectiveness of the medical service, satisfaction with the service readily arises from the older user. The medical service is indispensable to maintaining the older adult's health and other aspects of quality of life. The risk of mortality is clearly greater for the elder in the absence of medical service use (Leventhal, 2000). An ideal medical service would encourage self-care and health maintenance by the older adult, rather than making him or her dependent on the service (McDonald-Miszczak et al., 2001). Self-care is in turn a vital practice bolstering the elder's quality of life.

Chronic illnesses are important control variables needed for adequate investigation of the use and quality of the services. Elders with different chronic illnesses most likely enjoy differential levels of quality of life. Among chronic illnesses, the stroke, heart attack, pulmonary disease, arthritis, and vision impairment prove to be more traumatic in eroding the older patient's quality of life (Dorfman, 1995). Physical and mental aspects of quality of life are both vulnerable to the adverse effect of chronic illness (de Leon and Rapp, 1994; Sugisawa et al., 1994). The risk of mortality tends to heighten with the presence of chronic illness (Oman et al., 1999).

Research Question

Although there are theoretical and research grounds for the benefits of the use and quality of various services for elderly people, rigorous and fine-grained evidence is lacking in Hong Kong to show how beneficial the services are. Informed by the caring perspective, the home care service, day care center, nursing home, and medical service probably tend to be particularly contributory to the elder's quality of life. That is, services that provide care to older users and sustain their social relationships and their living in the real world are likely to promote the users' quality of life. Nevertheless, because past research has not explicitly evaluated the contribution of various services to older people's quality of life, the present study is necessary to verify if caring services offer the hypothesized benefit.

METHODS

The study surveyed 3,000 older Chinese people in Hong Kong from October 16, 2001 to June 28, 2002. This sample was to represent the population of older Chinese people in Hong Kong who are capable of responding to a survey interview. The survey set quotas for surveying young older people (aged 65–74), old older people (aged 75–84), and very old older people (aged 85+) using or not using services of social centers, community care, and residential care. The quotas ensured that the sample of older Chinese adults showed a fair distribution in age ranges and services in use. To conduct the sampling and survey, it solicited help from 140 service units of the continuum of care randomly selected from the whole lists of elderly service units. The sampling continued until the sample met its quotas. Eventually, 45 social centers, 24 multiservice centers, 12 home help service units, 19 day care centers, 16 hostels, and 24 homes for elderly people offered their support to the study. They were representative of elderly services of different kinds, agencies, and districts within the territory. Interviewers then visited the service units to interview members and nonmembers

summoned there. All of the respondents were capable and willing to participate in the survey (see Table I).

TABLE I
Percentage of background and service characteristics

Characteristics	(%)
<i>Age</i>	
65–74	(36.6)
75–84	(36.8)
85 or above	(26.6)
<i>Chronic illness</i>	
Hypertension	(30.4)
Heart disease	(11.8)
Diabetes	(13.3)
Chronic obstructive pulmonary disease	(1.4)
Asthma	(3.3)
Tuberculosis	(0.2)
Stroke	(7.5)
Parkinson's disease	(1.1)
Dementia	(0.2)
Kidney disease	(0.9)
Cataract	(9.3)
Gastric ulcer	(1.0)
Prostatis	(1.1)
Arthritis	(10.8)
Fracture	(3.4)
Gout	(8.4)
Cancer	(0.8)
<i>Sex</i>	
Male	(28.3)
Female	(71.7)
<i>Current service use</i>	
None	(4.9)
Social center	(27.7)
Multiservice center	(18.7)
Day care center	(10.3)
Home help	(5.8)
Hostel	(21.0)
Nursing home	(11.5)
Home care	(0.0)

The respondents responded to a survey questionnaire that built on results of 16 focus groups and a pretest. The focus groups recruited 157 Hong Kong Chinese older people to participate, between April 10 and June 9, 2001. Each focus group, as planned, comprised older adults of a certain age range (65–74, 75–84, 85+) who lived in a residential area indicative of a certain class (working class in the public housing estate, middle class in the private housing estate) and were using a certain service (social, community care, residential care). The groups focused discussion on the core question, “What is a good life? Why do you think that?”. With a process of screening and refinement, responses elicited from focus groups helped construct 61 questions for measuring the quality of life, including aspects of self-happiness, physical health, and the abstract global quality of life. After a pretest with 20 older adults selected from several social centers, the questionnaire eventually adopted the wording that was appropriate to the older population.

Measurement

A weighted measure of quality of life comprised the 61 items measuring various aspects of quality of life, based on weights empirically derived from a constrained linear regression analysis of a single-item measure of global quality life (“How good is your life currently?”). This weighted overall quality of life was therefore the best replica of the global quality of life based on the weighted sum of 61 items (see Table II). The global quality of life, however, was just a seed to identify the weighted overall quality of life useful for analysis and hypothesis testing. To strengthen the analysis, physical health was also a pertinent criterion used in the analysis. The measure of physical health combined six items, having a reliability alpha of 0.709. For the ease of interpretation, all measures of quality of life had scores lying between 0 (lowest) and 100 (highest).

Use of each service involved three units of measurement. One was the current use, another was cumulative months of service use, and a third was the frequency of service use per day,

TABLE II
Weights to identify weighted quality of life

Component	Weight	Standard error	95% lower bound	95% upper bound
<i>Quality of cultural activities</i>				
Analyzing affairs in society	0.008	0.014	-0.018	0.035
Increasing knowledge	0.000	0.015	-0.029	0.029
Realizing new things from learning from old things	0.000	0.015	-0.029	0.029
Studying	0.000	0.017	-0.033	0.033
Being aware of what happens in society	0.002	0.014	-0.025	0.030
Living a substantial life	0.140	0.016	0.109	0.172
Understanding life philosophy	0.012	0.012	-0.010	0.035
Joining interest classes	0.000	0.014	-0.027	0.027
<i>Quality of work</i>				
Repaying society with learning	0.000	0.015	-0.029	0.029
Helping people	0.000	0.014	-0.028	0.028
Doing what one likes	0.000	0.014	-0.028	0.028
Doing volunteer work	0.000	0.013	-0.025	0.025
Being capable of working	0.000	0.013	-0.025	0.025
Taking care of the younger generation	0.000	0.014	-0.028	0.028
Persuading others not to do anything wrong	0.000	0.011	-0.022	0.022
Playing a role model for younger people	0.000	0.013	-0.026	0.026
(Not) having no work to do	0.006	0.011	-0.015	0.027
(Not) being unable to do what one wants	0.036	0.012	0.013	0.059

TABLE II
Continued

Component	Weight	Standard error	95% lower bound	95% upper bound
<i>Quality of accommodation</i>				
Having convenient transportation to and fro from home	0.005	0.015	-0.024	0.034
Living in one's own house	0.000	0.010	-0.020	0.020
Using community facilities conveniently	0.026	0.013	0.000	0.051
Using a well-equipped toilet	0.069	0.016	0.039	0.100
Eating good food	0.093	0.017	0.060	0.125
(Not) leaking or soaking in the house	0.000	0.015	-0.030	0.030
(Not) dwelling in a small place	0.046	0.011	0.024	0.068
<i>Quality of finance</i>				
Having money to sustain oneself	0.003	0.014	-0.023	0.030
Having enough savings	0.000	0.014	-0.027	0.027
Having enough money to pay for living expense	0.068	0.020	0.029	0.107
Enjoying privileges provided for older people in society	0.032	0.011	0.010	0.054
Having money to meet needs for clothing, eating, etc.	0.021	0.020	-0.018	0.060
(Not) striving for a living	0.038	0.017	0.003	0.072
(Not) having nothing to eat	0.012	0.019	-0.026	0.049
<i>Quality of friendship</i>				
Being together with many friends	0.000	0.017	-0.033	0.033
Sharing experiences with a mass	0.008	0.014	-0.020	0.035

TABLE II
Continued

Component	Weight	Standard error	95% lower bound	95% upper bound
Experiencing caring concern by people other than family members	0.061	0.014	0.034	0.089
Chatting with intimate friends	0.004	0.017	-0.030	0.038
Showing care among friends	0.001	0.018	-0.034	0.036
(Not) Being alone at home	0.000	0.010	-0.020	0.020
<i>Quality of health</i>				
Sleeping well	0.023	0.013	-0.003	0.048
Being physically healthy	0.015	0.017	-0.019	0.050
Moving freely	0.000	0.014	-0.027	0.027
Being capable of cleaning the house	0.005	0.011	-0.017	0.027
Caring of oneself	0.017	0.017	-0.016	0.050
(Not) Having illness and pain	0.000	0.014	-0.028	0.028
<i>Quality of life: self</i>				
Seeking happiness	0.026	0.014	-0.001	0.054
Having a calm mind	0.052	0.016	0.022	0.083
Respecting oneself	0.028	0.015	-0.002	0.058
Realizing one's having good experience	0.000	0.014	-0.027	0.027
(Not) experiencing stress	0.004	0.013	-0.023	0.030
(Not) Worrying	0.052	0.013	0.026	0.078
(Not) feeling old	0.000	0.012	-0.023	0.023

TABLE II
Continued

Component	Weight	Standard error	95% lower bound	95% upper bound
<i>Quality of life: community</i>				
Experiencing world peace	0.054	0.013	0.028	0.080
Experiencing everyone's adjustment (to housing and work) in society	0.035	0.014	0.008	0.062
(Not) seeing people having no work to do	0.013	0.014	-0.015	0.041
(Not) experiencing poor economic conditions in society	0.005	0.014	-0.023	0.032
<i>Quality of life: family life</i>				
Offspring being filially pious	0.012	0.017	-0.020	0.045
Whole family's being together harmoniously	0.008	0.017	-0.026	0.042
Whole family's helping one another	0.000	0.015	-0.029	0.029
Family members' showing care to one another	0.005	0.018	-0.030	0.040
(Not) Offspring's being disobedient	0.020	0.011	-0.001	0.042
(Not) Family members' being unhappy	0.002	0.013	-0.024	0.028

which could be less than one (i.e., current use, cumulative use, and frequency of use). The original scale for measuring the frequency of service use was about the times of use in a certain number of days. A response such as three times per 2 days indicated a frequency of 1.5 times per day. Consequently, the average cumulative use in terms of months was as follows: social center (5.18), multiservice center (4.69), day care center (2.94), home help service (2.73), home care or enhanced home care (0.78), hostel (4.96), and nursing home (3.57). Clearly, the home care service was a new invention in Hong Kong, having few older people benefiting from it. Besides, each respondent indicated the frequency of service use per day or the number of days per use. The average frequency of service use, in terms of times per day, was as follows: interest group (0.09), meal service (1.33), traveling (0.03), meal-to-home service (0.06), home cleaning (0.02), personal care (0.03), physical exercise facilities use (0.44), volunteer service (0.09), medical service (0.03), and nursing service (0.04).

A measure of acquiescence referred to the average score of all five-point rating items was useful for control purpose in the analysis. This measure tapped the respondent's tendency to rate everything highly, regarding of the favorable or unfavorable content of the item. The analysis thus controlled for the chance that particular users of services were more acquiescent than were others.

Analytic procedure

Analyses proceeded with the comparison of quality of life among older adults using various services. Post hoc tests (with the Student–Newman–Keuls test) were useful for identifying the services with significant difference in the quality. To clarify differences due to various factors adequately, regression analyses took several steps, which included predictors hierarchically. The first step revealed the effects (in terms of metric or unstandardized coefficients) of background characteristics. Each of the effects represented the units of change in quality of life due to a certain unit of change in the predictor. Thus, the changes in quality of life in terms of points on a 0–100 scale

were readily transparent, without any need for conversion as in the case of standardized coefficients. Step two illustrated the effects of chronic illnesses, controlling for background characteristics. The third step estimated the effects of cumulative use of services, controlling for global quality of life in the past year. Step four unfolded the effects of the frequency of service use. The fifth step revealed the effects of current service use. Moreover, Steps 3 to 4 estimated interactive effects involving age, sex, and chronic illness after they had estimated the main effects of service use or quality.

RESULTS

The average current hostel resident had the highest global quality ($M = 72.6$, see Table III) and weighted quality of life ($M = 69.6$), among elders who currently used services of a social center, multiservice center, day care center, home help, nursing, home, hostel, and those who currently not using any of the services. Hostel residents' highest overall quality of life was outstanding, that is, significantly higher (mean differences = 4.89–13.93) than that of others according to the post hoc comparison (by the Student–Newman–Keuls test, $p < 0.05$ adjusted from familywide comparison). On the other hand, the average hostel resident did not manifest the highest quality of health ($M = 62.6$). Instead, the average elder who currently used none of the services exhibited the highest quality of health ($M = 66.9$). The average current user of a multiservice center ($M = 65.7$), social center ($M = 64.5$), or a hostel ($M = 62.6$) also had relatively higher quality of health than users of other services (mean differences = 9.1–19.7). Users of each of these services had outstanding quality in health, according to the post hoc comparison. On the other hand, the current user of a day care center displayed the lowest quality of health ($M = 46.1$). Global and weighted quality of life scores were the lowest among current users of home help services ($M = 58.7$ and 61.1). There were significant differences among users and nonusers of the services. Nevertheless, these

TABLE III
Means and standard deviations of quality of life

Current use	Mean		Standard deviation	
	Global quality of life	Weighted quality of life	Global quality of life	Weighted quality of life
None	64.2	66.1	21.6	11.8
Social center	65.2	66.4	21.7	13.6
Multiservice center	66.4	67.0	21.7	13.6
Day care center	62.1	62.3	25.0	14.6
Home help	58.7	61.1	23.6	13.2
Hostel	72.6	69.6	20.2	12.6
Nursing home	67.7	65.3	22.8	13.3
Total	66.5	66.3	22.3	13.6
<i>Eta</i>	0.170**	0.176**		0.328**
Oneway ANOVA <i>F</i>	14.7	15.9		60.0

Notes: The oneway ANOVA was followed by a *post hoc* test with the Student-Newman-Keuls method.

* $p < 0.05$; ** $p < 0.01$.

significant findings do not necessarily suggest the merit and weakness of various services because the analysis did not control for background differences among the elders. Thus, the findings only reflect the apparent variation in quality of life among them, without drawing causal inference about the influence of the services.

Effects of background characteristics

A better way to recover the causal mechanism was controlling for all significant background variables (out of age, sex, education, acquiescence, reception of public welfare, and others) in analyzing impacts of service use and quality. Among the background characteristics, income and living with older adults were significant contributors to all global quality of life, weighted quality of life, and quality of health (see Table IV). An elder who was female or faithful to Protestantism, had significantly higher global and weighted quality of life. Thus, sex and religious faith did not make a significant difference in the elder's quality of health. Weighted quality was also significantly higher in an elder who had more children, more generations in the household, or higher education, but did not live with offspring. An elder with higher education also had significantly better quality in health. On the other hand, the quality of health was significantly higher in an elder who lived in private housing, did not depend on financial support from the spouse or public assistance, or was younger. Aging, however, did not significantly erode the elder's overall quality of life.

The verification of certain effects of background characteristics on quality of life indicates the validity of the quality of life measure. An elder who is female, faithful to a religion, having higher income, education, or more children experiences higher quality in life, according to many past studies (George and Landerman, 1984; Holahan and Sears, 1995; Mullins and Elston, 1996; Atchley, 1999; Kim et al., 1999; Ryff et al., 1999; Chou and Chi, 2002; Crosnoe and Elder, 2002). Similarly, past research has shown that health is better in an elder who is younger and higher educated (Mullins and Elston 1996; Mjelde-Mossey and Mor Barak, 1998; Lam et al., 1999;

TABLE IV
Metric effects of background characteristics on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Constant	49.569*	73.595**	89.323**
Faith in Protestantism (vs. no religious faith)	3.414**	1.697*	0.740
Faith in Catholicism (vs. no religious faith)	-0.841	-1.429	-1.732
Faith in Buddhism (vs. no religious faith)	1.196	0.395	-1.003
Faith in Daoism (vs. no religious faith)	-2.282	-0.236	-4.049
Residence in a public-provided rental flat (vs. quarters)	-1.470	-0.635	2.225
Residence in a public-provided owned flat (vs. quarters)	-0.823	1.232	3.735
Residence in a private flat (vs. quarters)	0.520	0.862	3.568*
Residence in a private room (vs. quarters)	-0.642	-0.089	7.456**
Living with offspring	-2.400	-3.724**	-4.029
Living with older adults	5.902**	3.444**	2.415*
Number of generations in the household	2.747	5.369**	3.750
Number of living children	4.475	4.358**	-1.435
Unmarried (vs. cohabited)	2.435	-1.882	0.687
Married (vs. cohabited)	-2.549	-5.720	-4.320
Divorced (vs. cohabited)	4.374	-2.813	-1.593
Widowed (vs. cohabited)	0.536	-3.900	-0.987
Income (lowest to highest)	29.155**	24.599**	16.559*
Income from earnings	7.108	-15.493	-26.749
Income from the spouse	2.732	-17.232	-33.938*

TABLE IV
Continued

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Income from children	4.506	-10.833	-25.174
Income from other relatives	1.909	-9.980	-20.880
Income from public assistance	5.306	-11.804	-28.657*
Income from pension	5.878	-9.107	-23.183
Education (lowest to highest)	5.068	9.226**	12.428**
Age (lowest to highest)	-0.483	-1.138	-12.376**
Female (vs. male)	3.312**	1.830**	-0.187
R^2	0.036	0.056	0.057

Notes: The range of change in the predictor to yield the estimated effect was shown within parentheses. Indicators for religious faith, residence, living arrangement, marital status, and income sources were dichotomous variables, with 1 for "yes" and 0 for "no".

* $p < 0.05$; ** $p < 0.01$.

Bryant et al., 2000; Luoh and Herzog, 2002). These findings again appear in the present study, thus espousing the predictive validity of the quality of life measures.

Effects of chronic illnesses

Chronic illnesses were important predictors and therefore necessary control variables revealed in the analysis. Most chronic illnesses made a significant difference in global quality of life, weighted quality of life, and quality of health. Chronic obstructive pulmonary disease had a relative strong impairment to the elder's global quality of life ($b = -7.051$). This disease also significantly attenuated the elder's weighted quality of life ($b = -4.130$), indicating that the disease also prevented the elder's normal life in significant areas.

Kidney disease and Parkinson's disease exerted the strongest impairment on the elder's weighted quality of life ($b = -7.913$ and -7.891). These two diseases appeared to be the most dysfunctional to the elder's life in various significant aspects. Moreover, these two diseases significantly impaired the elder's quality of health ($b = -13.376$ and -26.065), which was an integral part comprising weighted quality of life. Next to these two diseases was the stroke and chronic obstructive pulmonary disease, in terms of their impairment of the elder's weighted quality of life ($b = -4.162$ and -4.130). The adverse effect of the stroke on the elder's quality of health was also sizable ($b = -18.323$). Thus, Parkinson's disease, kidney disease, and the stroke were serious impediments to the elder's quality of health. Besides, fracture eroded the elder's quality of health substantially ($b = -10.586$). Heart disease, asthma, and diabetes also weakened the elder's quality of health ($b = -8.503$, -6.844 , and -6.063).

Effects of cumulative service use

With the chronic illnesses and other significant background variables kept as a constant for all older people, the regression analysis fairly examined differences associated with the use and quality of different services. The third step was for the analysis to add cumulative service use variables as additional predictors.

Consequently, cumulative use of home care emerged as the strongest predictor of global quality of life ($b = 40.063$, see Table VI). The regression coefficient suggests that an elder who used home care for one more year would be 40.063 points higher in global quality of life. This was a significant finding. The sizable effect appears to stem from the fact that few elders had used the home care service for a long time because it was a relatively new service in Hong Kong. Cumulative home care use also manifested a tremendous effect on the elder's weighted quality of life ($b = 14.130$). The effects of cumulative home care use appear to hold for all older people because of the insignificance of its interactive effects with chronic illness, age, and sex (see Table VI).

Cumulative use of the social center and multiservice center showed positive effects ($b = 0.303$ and 0.515), suggesting that the longer use raised the user's global quality of life to a higher level than did others. The cumulative use of the social center also significantly improved the older user's weighted quality of life ($b = 0.176$), in comparison with others. These effects tend to hold for all older people, in view of the insignificant interactive effects, except the significant variation of the effect of cumulative use of the social center on the weighted quality of life of men and women ($b = -0.320$). The estimate indicated the effect was greater for men than for women.

Cumulative use of the nursing home was the only significant predictor of the elder's quality of health ($b = 0.574$). Each year of use of the nursing home would increase the elder's quality of health by 0.574 point. Nevertheless, the increase was small and it would take a long time for the use to manifest an appreciable effect on the resident's health. The effect can hold for all older people, because of the insignificant interactive effects involving cumulative use of the nursing home.

Cumulative use of a hostel service, however, indicated negative effects on the elder's weighted quality of life ($b = -0.212$) and quality of health ($b = -0.391$). Longer stay in a hostel tended to diminish the resident's quality of life, other things being equal. Whereas the effect on weighted quality of life appears to hold for all older people, the effect on quality of health

significantly varied depending of the number of chronic illnesses ($b = 0.258$). The effect was especially adverse on the quality of health of an elder with no chronic illness. An elder with more chronic illnesses would be immune to the influence of cumulative use of the hostel.

Effects of service use frequency

The fourth step was analysis of the effects of the frequency of service use, given the existing influences of background characteristics and cumulative service use. Consequently, the frequency of participation in interest groups with the services showed significant effects on the elder's weighted quality of life and quality of health ($b = 3.915$ and 4.338 , see Table VII). The frequency also showed a minimal and insignificant effect on the elder's global quality of life ($b = 0.345$). In general, an elder with more frequent participation in interest groups would be higher on quality of life. The benefit of interest group participation tends to apply to all older people, because of the insignificance of interactive effects of the participation and chronic illness, age, and sex (see Table VII).

On the other hand, the frequency of use of the meal-to-home service, medical service, and nursing service showed some significant negative effects on some indicators of quality of life. Particularly, the frequency of use of the medical service had a remarkable effect on quality of health ($b = -12.144$). Thus, an elder who use the medical service more frequently turned out to be lower on quality of health. Similarly, the frequency of use of nursing and meal-to-home services displayed particularly greater negative effects on the elder's quality of health. These findings nevertheless reflected some predetermined adverse and acute conditions that both necessitated the elder's use of these three services and eroded the elder's quality of life. As such, frequent use of these services appeared to be a covariate or collateral of lower quality of life, rather than a cause of it. On the other hand, frequent use of these services might not significantly improve the elder's quality of life. These effects generally apply to all older people the effects of the frequency of use of meal service and meal-to-home service, based on findings

about the interactive effects (see Table VII). The effects of use of these meal services were less negative on the quality of health of an elder with more chronic illnesses or older age. Hence, this elder's health would not deteriorate with frequent use of the meal services.

Effects of current service use

The fifth step of analysis introduced current use of service as an additional set of predictors of quality of life, given all the influences of background characteristics, chronic illnesses, cumulative use and frequency of use of services. Results show that current use of the day care center, home help service, and nursing home showed negative effects on the elder's quality of health ($b = -14.434$, -7.869 , and -8.336 , see Table VIII). In other words, elders who currently used these services were relatively lower on quality of health, a finding consistent with the analysis of crude differences among various services (see Table III). Current users of these services then exhibited a quality of health that was lower than that of elders who currently used none of the services. Their worse health status might be attributable to an existing condition that both required their use of the services and impaired their quality of health. In contrast, elders who currently did not use any of the services were in better health status. The findings together suggest that using the services for a short time would jeopardize the elder's quality of health, probably due to the need for adaptation to the new service environment. Short-term effects of service use thus did not appear to yield favorable results for older people. The effects of current use generally apply to all older people, based on their interactive effects with chronic illness, age, and sex (see Table VIII). However, the effect of current use of nursing home on quality of health significantly varied according to the elder's age ($b = 0.339$). The effect was less negative on an elder who was older.

In sum, the home care service most remarkably improved the elder's quality of life through cumulative use. The social center could improve the elder's quality of life through its cumulative use and quality. Similarly, the multiservice center and nursing

home could improve the elder's quality of life through its cumulative use. The interest group could raise the elder's quality of life to a higher level with more frequent participation in the group. The volunteer service could raise the elder's quality of health to a higher level with more frequent participation in the group.

DISCUSSION

Some notable findings about the contribution of health and social services for elderly people evolve from the study. The home care service shows the greatest benefit in the elder's quality of life with cumulative use. This benefit does not vary significantly due to the elder's chronic illness, age, and sex. Hence, these background conditions are not necessarily responsible for the benefit of the home care service. Besides, the social center, multiservice center, nursing home, clinic, hospital, hostel, interest group, and volunteer services maintain some significant contributions, either through their cumulative or frequent use, or through their quality (see Tables V–VIII). From the perspective of caring, the findings suggest the importance of maintaining long-term relationships in the real world (Robinson, 1996; Draper, 1997). Cumulative use of the home care service tends to embody this caring perspective typically. Accordingly, the home care service provides thorough care to the older care recipient, maintains a close relationship with the elder through care or case management, and enhances the elder's community life. The home care recipient has ample autonomy and control over the service, in making choices of services, thus enjoying the benefit of empowerment and control. These findings and explanations are consistent with the expectation that services with a caring element and perspective contribute more to the elder's quality of life. Similarly, the caring perspective also applies to explaining the contribution of cumulative use of the nursing home, clinic, and hospital. In contrast, the home help service may not provide care that is thorough enough to make its effects on the user's quality of life significant.

TABLE V
Metric effects of chronic illnesses on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Hypertension	-1.654*	-0.155	-1.884*
Heart disease	-1.052	-3.166**	-8.503**
Diabetes	-1.900	-1.353*	-6.063**
Chronic obstructive pulmonary disease	-7.051*	-4.130*	-5.001
Asthma	-2.883	-2.808*	-6.844**
Tuberculosis	0.778	3.995	-1.070
Stroke	-3.073*	-4.162**	-18.323**
Parkinson's disease	-1.360	-7.891**	-26.065**
Kidney disease	-6.926	-7.913**	-13.376**
Cataract	0.047	-1.530*	-3.286**
Gastric ulcer	-1.781	-1.853	-5.028
Prostatitis	-3.140	-0.647	-1.134
Arthritis	-0.285	-2.546**	-4.773**
Fracture	-0.669	-1.420	-10.586**
Gout	-2.743*	-1.742*	-4.773**
Cancer	0.369	-1.754	-7.122*
<i>R</i> ²	0.302	0.262	0.259

Notes: The regression analysis controlled for all other significant background factors and quality of life in the past years. Indicators for chronic illness were dichotomous variables, with 1 for “yes” and 0 for “no”.

p* < 0.05; *p* < 0.01.

Table VI
Metric effects of cumulative service use (per year) on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
<i>Main effect</i>			
Social center	0.303**	0.176*	0.000
Multiservice center	0.515**	0.455	0.274
Day care center	0.659	0.354	0.442

Table VI
Continued

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Home help	0.133	-0.004	-0.558
Home care	40.063**	14.130*	18.909
Hostel	-0.287	-0.212**	-0.391*
Nursing home	-0.089	0.423	0.574*
R^2	0.310	0.272	0.264
<i>Separate interactive effect</i>			
Social center \times Chronic illness	-0.096	-0.063	-0.022
Multiservice center \times Chronic illness	0.074	-0.033	0.254*
Home care \times Chronic illness	-15.703	-1.664	-1.351
Hostel \times Chronic illness	0.073	0.132	0.258*
Nursing home \times Chronic illness	-0.079	-0.110	-0.338
Social center \times Age	-0.006	-0.006	0.005
Multiservice center \times Age	-0.019	-0.021*	-0.019
Home care \times Age	-1.766	-0.562	-1.432
Hostel \times Age	0.018	-0.003	0.008
Nursing home \times Age	-0.014	-0.011	0.006
Social center \times Female	-0.023	-0.320*	-0.553*
Multiservice center \times Female	-0.146	-0.169	-0.072
Home care \times Female	-45.082	-41.546	-29.935
Hostel \times Female	-0.050	0.057	-0.065
Nursing home \times Female	-0.212	-0.515	-0.452

Notes. The regression analysis controlled for all other significant background factors and quality of life in the past years.

The predictors listed above were: Cumulative use the social center (1 unit = 1 year); Cumulative use of the multiservice center (1 unit = 1 year); Cumulative use of the day care center (1 unit = 1 year); Cumulative use of the home help service (1 unit = 1 year); Cumulative use of the home care service (1 unit = 1 year); Cumulative use of the hostel (1 unit = 1 year); Cumulative use of the nursing home (1 unit = 1 year); Number of chronic illnesses (1 unit = 1 illness); Age (1 unit = 1 year); Female (vs. male)

* $p < 0.05$; ** $p < 0.01$.

Apart from the caring perspective, a perspective of active aging serves to explain the advantage of the social center, interest group, and volunteer service for the older adult's quality of life (Walker, 2002). These benefits also appear to be invariant across older adults with different conditions of chronic illness, age, and sex. The active aging perspective, built on activity theory (Utz et al., 2002) and social integration theory (Schieman and Campbell, 2001), posits that active engagement in social life promotes the older adult's quality of life. Specifically, the older adult's meaningful pursuits, interaction with diverse people, and maintaining intergenerational solidarity can champion the rights and obligations of the older population (Walker, 2002). The engagement in turn insulates the elder from the threat of discrimination. Research on activity theory and social integration theory also indicates the benefit of social involvement to the older adult. The elder's self-esteem is a notable well-being dimension benefiting from activity, especially social activity (Atchley, 1999). The facilitation of the elder's social involvement and integration appears to be an essential task of the social center, through its interest groups and volunteer service.

Cumulative and frequent use of services, notably those of home care, the nursing home, social center, interest group, and volunteer service, are important to engender favorable impacts on the older user's quality of life. Conversely, short-term and recent use of the services does not demonstrate the benefit. In comparison with sustained use, current use of most of the services therefore displays negative effects on the elder's quality of life. Accordingly, given the influence of cumulative use of services, current use of services reflects transition between services. Such transition would be detrimental to the older user's quality of life because of the need for adaptation (Jackson and Longino, 1991; Brenna et al., 1999). According to the theory of readjustment, whenever there is a change, there is a concomitant need for readjustment. During the transitional period of readjustment, the elder will suffer stress and anxiety, which impair the elder's quality of life. Thus, any new adoption of a service will lead to a setback in quality of life.

TABLE VII
Metric effects of service use frequency (each time per day) on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
<i>Main effect</i>			
Interest group	0.345	3.915**	4.338**
Meal service	0.637*	0.217	-0.695**
Travel	1.975	0.757	0.689
Meal-to-home service	-3.405**	-1.748**	-5.383**
Home cleaning service	2.413	-0.652	-2.546
Personal care service	-0.558	0.944	-2.910
Sport facilities	-0.199	-0.112	-0.481
Volunteer service	0.313	0.969	2.538*
Medical service	-3.643	-4.518*	-12.144**
Nursing service	-1.960	-1.037	-7.683**
R^2	0.315	0.283	0.293
<i>Separate interactive effect</i>			
Interest group × Chronic illness	-0.730	-0.646	-1.418
Meal service × Chronic illness	-0.044	0.217	0.577**
Meal-to-home service × Chronic illness	0.275	0.843	1.931*
Volunteer service × Chronic illness	-0.872	-0.430	-0.116
Medical service × Chronic illness	2.321	0.712	0.831
Nursing service × Chronic illness	0.421	0.900	0.718

TABLE VII
Continued

Predictor	Criterion	Global quality of life	Weighted quality of life	Quality of health
Interest group × Age	-0.257	-0.086	-0.161	
Meal service × Age	0.003	0.038*	0.129**	
Meal-to-home service × Age	0.000	-0.018	0.116	
Volunteer service × Age	0.029	0.013	-0.018	
Medical service × Age	-0.152	-0.284	-0.529	
Nursing service × Age	-0.438	-0.273	0.142	
Interest group × Female	-1.097	-1.064	-1.105	
Meal service × Female	-0.226	0.247	0.444	
Meal-to-home service × Female	-2.676	-0.421	1.601	
Volunteer service × Female	2.034	-0.016	-0.577	
Medical service × Female	8.846	2.759	6.470	
Nursing service × Female	1.819	2.026	2.777	

Notes: The regression analysis controlled for all other significant background factors and quality of life in the past years. The predictors listed above were: Use of the interest group (1 unit = 1 time per day); Use of the meal service (1 unit = 1 time per day); Participating in traveling activities (1 unit = 1 time per day); Use of the meal-to-home service (1 unit = 1 time per day); Use of the home cleaning service (1 unit = 1 time per day); Use of the personal care service (1 unit = 1 time per day); Use of sport facilities (1 unit = 1 time per day); Use of the volunteer service (1 unit = 1 time per day); Use of the medical service (1 unit = 1 illness); Age (1 unit = 1 year); Female (vs. male) **p* < 0.05; ***p* < 0.01.

TABLE VIII
Metric effects of current service use on quality of life

Predictor	Criterion		
	Global quality of life	Weighted quality of life	Quality of health
Social center	-0.106	-0.362	-2.270
Multiservice center	0.347	-0.492	-1.841
Day care center	-1.414	-2.471	-14.434**
Home help	-0.567	-1.405	-7.869**
Hostel	3.440	1.646	-2.856
Nursing home	-0.787	-2.028	-8.336**
R^2	0.318	0.290	0.321
<i>Separate interactive effect</i>			
Day care center × Chronic illness	0.397	0.736	-0.089
Home help × Chronic illness	0.868	0.362	0.582
Nursing home × Chronic illness	-0.575	0.122	0.402
Day care center × Age	0.149	0.075	0.241
Home help × Age	0.116	0.036	-0.004
Nursing home × Age	-0.088	0.097	0.339**
Day care center × Female	0.166	-0.276	3.140
Home help × Female	-3.480	-0.672	0.096
Nursing home × Female	-1.182	0.146	0.412

Notes: The regression analysis controlled for all other significant background factors and quality of life in the past years.

The predictors listed above were: Current use of the social center (yes vs. no); Current use of the multiservice center (yes vs. no); Current use of the day care center (yes vs. no); Current use of the home help service (yes vs. no); Current use of the hostel (yes vs. no); Current use of the nursing home (yes vs. no); Number of chronic illnesses (1 unit = 1 illness); Age (1 unit = 1 year); Female (vs. male).

* $p < 0.05$; ** $p < 0.01$.

On the other hand, frequent use of meal-to-home, medical, and nursing services appears to come along with lower quality of life. Their frequent use did not produce significant improvement in the elder's quality of life, in contrast to frequent use of interest groups and volunteer service that showed the benefit. The failure to demonstrate the improvement tends to result from the acuteness and severity of problems that

precipitate frequent use of the services (Krause, 1998; Thomas and Payne, 1998). Such problems would also undermine the elder's quality of life. Apparently, frequent use of the services is a response to the acute and serious problem and cannot yield favorable amelioration of the problem overnight. Salutory effects from the services appear to depend on their cumulative and sustained use. Quality of life does not seem to rise suddenly, with the use of services.

Limitations

The above findings, nevertheless, suffer from a limitation pertaining to the retrospective self-report design of the study. In the study, all those quality of life evaluations and experiences with service use came solely from the elder's retrospective report. The usual technique of regression analysis is no guarantee that the experiences were the causes of the evaluations and not the reverse. The reverse case is possible in that the elder was free to improvise retrospective responses based on current evaluations. Even without the problem of recall, the analysis does not eliminate the possibility of some prior conditions predispose both the ways of service use and quality of life results. With the limitation, findings from the study decidedly require further corroboration, desirably with a prospective design that controls for prior quality of life and any self-selection factors. Further research is also preferable to discern the specific service (e.g., which recreational service?) that affects the older adult's quality of life. Its investigations into the many interactive effects involving service use and personal backgrounds are clearly necessary to verify and understand the contingencies in service benefits.

While most findings were robust against the variation due to personal characteristics, some significant interactive effects were significant. These interactive effects, in addition to showing systematic variation, also register the instability of the main effects. Therefore, those main effects of use of meal and nursing home services are occasionally unstable. On the other hand, measures of quality and life quality, however reliable, have not yet demonstrated their validity against alternative measures.

Validation of these quality measures is evidently necessary in further research.

Practical implications

Practical ways for improving the effectiveness of health and social services to promote the older user's quality of life need to sustain the user's continuing use of the services and avoid change in the services. In case the elder has to change services due to changed needs, special attention is required to minimize stress due to readjustment. Besides, the relational, empowerment, and real-world approaches in the caring perspective can help services to sustain their older users' quality of life. Notably, maintaining relationships in the community is an effective means to elevate older users' quality of life at least to a level comparable to that of nonusers. As such, the home care or enhanced home care service merits development.

Among the services, the nursing home is the only one that can significantly sustain or promote the older adult's quality of health with cumulative use. Despite the alleged shortcomings with the nursing home, such as deprivation of older residents' control and independence (Kaye, 1992), its unique merit is noteworthy. Around-the-clock nursing and medical care in the nursing home tends to be responsible for the merit. Nevertheless, its contribution to the resident's general quality of life is not significant. It verifies the contention that the nursing home puts emphasis on health care, but neglects social care (Kaye, 1992). Hence, enhancing the social service components in the nursing home would achieve its cost-effectiveness for sustaining older residents' quality of life in various aspects.

ACKNOWLEDGMENTS

The paper is a product of the CityU Interdisciplinary Research Project (#9360056), "Assessment, Validation, and Promotion for the Quality of Life of and Continuum of Care of Elderly People in Hong Kong". The Project is under the leadership of Alex Yui-huen Kwan.

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AN EXPLORATORY STUDY ON THE QUALITY OF LIFE OF OLDER CHINESE PEOPLE LIVING ALONE IN HONG KONG

(Accepted 2 June 2004)

ABSTRACT. This study successfully interviewed 109 randomly selected Chinese people aged 60 and over living alone in two public housing estates in an urban area of Hong Kong. The results show that mental health status, number of days staying in hospital, life satisfaction, age, and self-esteem are significant factors in predicting the life quality of older Chinese respondents living alone. The explanatory power of this model is 56.4%. The results of this study are consistent with previous findings reported in the west and in Hong Kong. A subgroup analysis of those older Chinese respondents living alone who have offspring also living in Hong Kong shows that belief in childrens' support in old age, good walking ability, and better self-reported health status via life satisfaction as the mediating variable, better self-reported health status and satisfactory self-reported financial status via self-esteem as the mediating variable, are crucial predictors of quality of life. This model explains 64.2% of the variance in quality of life from a subset of the predictor variables.

KEY WORDS: family support, health, living alone, older people, quality of life

INTRODUCTION

An increasing aging population, rapid economic growth, and social changes that have greatly improved living standards among older people, all facilitate the scientific study of the quality of life of the same people. In the west, social researchers have been systematically studying quality of life among older people for several decades (George and Bearon, 1980; Farquhar, 1995; Lassey and Lassey, 2001). Only recently have social researchers in Hong Kong begun to carry out rigorous studies of this topic (Leung et al., 1997; Chan et al., 1999, 2000,

2002, in press; Cheng et al., 2002; Kwan et al., 2003), and among these, very little work has been done on the quality of life of older people living alone.

This study adopts George and Bearon's (1980) frequently cited definition of quality of life to formulate a theoretical framework to assess the quality of life of older Chinese people living alone. This paper reports the findings of a cross-sectional study whose aims are: (1) to identify predictors of quality of life of the Chinese people aged 60 or more living alone in two public housing estates (developed for people of relatively low socioeconomic status) in an urban area of Hong Kong; (2) to further identify predictors of quality of life of those older Chinese people living alone who have children also staying in Hong Kong; (3) to provide information which will help to fill the gaps in the literature of life quality; (4) to point toward ways of improving the well-being of these people; and (5) besides enriching the general public's understanding of quality of life among Chinese people of lower socioeconomic background, will be compared with findings reported in the west.

LITERATURE REVIEW

Quality of life, or well-being, is difficult to define. As a concept applied to older people, it has to do with personal characteristics, life satisfaction, happiness, and the process of aging relative to the socioeconomic and cultural conditions in which aging takes place. Generally, quality of life is related to the notion of a good life. Like well-being, quality of life as a research concept has been dogged by persistent problems of definition and measurement and by uncertainties about its changing pattern over the person's life course (George and Bearon, 1980; Kahn and Juster, 2002).

It is widely known that quality of life in older people can be assessed either subjectively or objectively (George and Bearon, 1980; Fry, 2000; Lassey and Lassey, 2001; Schmitt and Jüchtern, 2001; Cheng et al., 2002; Kwan et al., 2003; Vittersø, 2004). Social researchers believe that older people's subjective responses, what they think and say about quality of life, are

real, in the sense that older people act on the basis of them. Assessing older people's quality of life taking account of their perceptions is a useful way for social researchers to broaden their understanding of the concept. To date, this has been the dominant approach in studying quality of life in older people (Farquhar, 1995). The results of objective measures also yield comparative data across different age groups in different geographical areas, thus providing social researchers with an alternative approach in drawing up their project designs for assessing older people's quality of life.

Social researchers in the west have provided useful information, allowing the general public to understand older people's quality of life. It has been found that quality of life is related to home life and marriage (Hall, 1976), family relationships (Hall, 1976; Farquhar, 1995; Aureli and BaldaZZi, 2002), and health (Age Concern, 1974; Hall, 1976; Farquhar, 1995; Michalos et al., 2000, 2001; Aureli and BaldaZZi, 2002). It has been pointed out that declining health is usually associated with a less active life, loneliness and increased reliance on others (Age Concern, 1974). Health plays a dominant role in mapping out these people's life satisfaction and happiness (Michalos et al., 2000, 2001). Low satisfaction also results from lack of economic resources as well as illness (Aureli and BaldaZZi, 2002). Michalos et al. (2001) emphasize that quality of life is age-related. Factors contributing to quality of life may change with age over the life course.

In Hong Kong, the approaches used to measure quality of life for older Chinese people are both subjective and objective (Chan et al., 1999, 2000, 2002, in press; Cheng et al., 2002; Kwan et al., 2003). The typical subjective measure used by these social researchers is to ask older people to tell them in their own words what quality of life is about. The researchers then conceptualize quality of life in a Chinese way. Because each of these researchers use different questions and/or work within different conceptual frameworks, some of their findings may not be directly comparable. Perhaps one of the best ways to review their work is to list their major findings one by one. This is done in the following paragraphs.

Using information obtained from five focus groups, Chan et al. (2002) formulate their concept of quality of life under three headings: (1) biological: health, ability to self-care, absence of illness and pain, and ability to move around; (2) psychological: happiness, ability to learn, and ability to do interesting things; and (3) social: keeping up an active social life, helping others, obtaining social support in times of need, and being supported by children/relatives. Chan et al. (2002) carried out a large-scale survey on quality of life in older people and found that the following factors, as assessed by the older people themselves, contribute to their quality of life: life satisfaction, eating well, sleeping well, good family support, good health, and satisfactory financial conditions.

The findings of Kwan et al. (2003) are somewhat different from those of Chan et al. (2002). They classified the results of a study involving 16 focus groups into the following nine areas: (1) to participate in activities organized by elderly social centers; (2) to have a paid job and/or to join in volunteer services; (3) to have own home, preferably a large one, and/or to have access to household facilities; (4) to be supported by family members and to have sufficient money to support living; (5) to keep a good social relationship with friends and neighbors; (6) to have no pain from illness, to be physically able to move around, and to be self-caring; (7) to be self-contented, to be happy, and to think the best of oneself; (8) to have a good family relationship, to live with children; and (9) to be respected by the general public, and to live in a peaceful world. Kwan et al. (2003) also employed a large sample, quantitative approach to study older people's quality of life. They summarize their findings as follows: (1) living a substantial life; (2) eating good food; (3) using a well-equipped toilet; (4) having enough money to pay for living expenses; (5) experiencing caring concern by people other than family members; (6) experiencing world peace; (7) having a calm mind; and (8) not worrying. Some of these findings are comparable with those of Chan et al. (2002). Both attached importance to: being physically and mentally healthy, being socially active, being financially sound, being happy, eating well, and having good

family relationships. These findings are also comparable with the western findings mentioned earlier.

Lee and Chi (1990), and Chou and Chi (1999) did not directly measure quality of life. Instead, they measured older people's quality of life via life satisfaction. They report that younger older people living in Hong Kong who have a higher level of life satisfaction tend to suffer from less financial strain, enjoy better social support, have higher education, and have fewer somatic complaints.

In general, the findings of these most recently published papers and/or reports strongly suggest that good physical and mental health, a higher level of life satisfaction, problem-free financial status, good family support, and active social life are major contributory factors to older Chinese people's quality of life. These findings seem to be fairly close to those reported in the west.

Older Chinese People Living Alone in Hong Kong

In 1999, the Hong Kong Census and Statistics Department conducted its first large-scale study on older Chinese people living alone. It reports that about 8.8%, (i.e., 84 900) of the total aging population aged 60 and over live alone. Of these, females represented greater numbers than males. The females are generally older than their male counterparts. The older people who have never been married are much more likely than their married or once-married counterparts to live alone, and to live alone for a longer period of time. More than half of these people receive government aid (including Comprehensive Social Security Assistance – formerly known as the Public Assistance, Old Age Allowance, and Disability Allowance). About 60% of these people have children in Hong Kong (Census and Statistics Department, 1999).

Living alone brings unique challenges to older people's quality of life. In library and electronic searches a few published papers on the impact of living alone on quality of life among older Chinese people have been found. It is reported that older Chinese people living alone either in Hong Kong or in other

parts of the world generally tend to be female, widowed, to have a poor self-rated health status, to have received less formal education, a higher level of financial strain, a smaller social network of relatives, weaker familial support, higher levels of depression, lower levels of life satisfaction, and a lower level of quality of life (Mui, 1998; Chou and Chi, 2000; Gee, 2000). No predictors of quality of life of older Chinese people living alone have been identified by these social researchers.

In summary, there is a profusion of published papers dealing with the issue of quality of life among older people both in the west and in Hong Kong. Compared with those living with others, the physical and mental health status of older people living alone is poorer. They have lower levels of life satisfaction, higher levels of financial strain, and a lower quality of life.

What are the predictive variables of quality of life of (1) older Chinese people living alone, and (2) older Chinese people living alone but with children staying in Hong Kong? One of the major goals of this study is to identify the predictive variables for these people.

THEORETICAL FRAMEWORK

The term *quality of life* is vague. Different social researchers make use of different concepts and definitions in exploring the issue of quality of life among older people. One commonly cited definition of quality of life was developed by George and Bearon in 1980 (Farquhar, 1995). Actually, George and Bearon's definition of quality of life in older people is a rather "loose" one. They describe the quality of life as composed of four central dimensions, namely,

(1) subjective evaluations: (a) life satisfaction and related measures, (b) self-esteem and related measures; and

(2) objective conditions: (c) general health and functional status, (d) socio-economic status.

George and Bearon (1980) maintain that life satisfaction has been traditionally used as an indicator of quality of life. Major

social gerontological theories such as theories of successful aging, activity theory, continuity theory, and disengagement theory are developed using the concept of life satisfaction. Self-esteem can be characterized as a general sense of self-worth. It is a useful indicator of subjective quality of life. In terms of general health and functional status, George and Bearon stress that it is an important component of quality of life. Among older people, health problems and disabilities result in dependent living. George and Bearon point out that functional status is the most important aspect of physical well-being. It includes such factors as mobility, ability to carry out self-maintenance and preferred activities, and general energy level. Functional status is both an indicator of life quality for older people and a resource which conditions the subjective experience of life. Turning to the socioeconomic status, George and Bearon argue that the term *quality of life* calls to mind such things as adequate income, material well-being, financial security, and additional related factors. They contend that although socioeconomic conditions are basically objective phenomenon, health and functional status, as well as material well-being can also be measured subjectively in terms of perceived adequacy of income, satisfaction with financial resources, and so forth.

George and Bearon (1980) point out that these four dimensions do not tell the whole tale in assessing older people's quality of life, yet they are the four central ones. Further dimensions can be added to reflect the cultural and socioeconomic development of society. Their definition has nevertheless inspired many social researchers in studying quality of life in older people. This study will make use of George and Bearon's definition to explore the quality of life of older Chinese people living alone.

This study adopts the World Health Organization's definition of health as a state of complete physical, mental and social well-being, with the emphasis on physical health and functioning ability. This paper considers that the general health and functional status of older people includes both physical and mental health. This paper stresses that functional status is an important dimension of quality of life. In order to provide a

more comprehensive view of older Chinese people's overall health status, this paper includes the following variables: (1) the self-reported number of days staying in hospital in the 3 months prior to the interview, (2) the number of days confined to bed for most of the day in the 3 months prior to the interview, and (3) the self-perceived walking ability.

To provide a more complete view of quality of life among older Chinese people, the concept of residential satisfaction, i.e., self-reported satisfaction with one's physical living environment, is also added to George and Bearon's list of dimensions. As Perez et al. (2001) have said, "home is more than a symbol of quality of life at all ages. It is the place to cover one of our basic needs, namely accommodation. It can have certain benefits for one's physical health and psychological welfare" (p. 174). In this study, residential satisfaction refers to older people's subjective appraisal of their satisfaction with the physical living environment.

As mentioned in the literature, good family support is crucial to older people's quality of life. The concept of family support is measured by the following two variables: relationship with one's children and belief in children's support in old age. This paper will add these two variables to the current theoretical framework for those older people living alone who have children in Hong Kong (a subgroup analysis).

Research Questions of This Study

Four research questions have been formulated for this paper. They are:

1. What are the significant variables related to the quality of life of older Chinese people living alone?
2. What are the predictors of these people's life quality?
3. What are the significant variables of quality of life of those older people living alone who have children living in Hong Kong?
4. What are the predictors of life quality of these older people with children living in Hong Kong?

METHOD

Sampling and Data Collection

The respondents in this study were aged 60 or over, living alone in two public housing estates located in an urban area of Hong Kong. They were members of a district elderly community center ran by a non-governmental organization. With the cooperation of this district elderly community center, the sample was randomly drawn from its current membership list. As many of the members had received little formal education, supervisory staff at the center helped explain the research to all potential older respondents before the data collection procedure started.

The study is cross sectional and uses a face-to-face interview approach with a questionnaire mainly composed of closed-ended questions. College students trained for the project were sent to conduct interviews at the respondents' homes. They obtained the respondent's oral consent before beginning the interview. A total of 109 respondents participated in the project, a success rate of 75.6%. Among these older respondents, 58 (i.e., 53.2%) had children living in Hong Kong.

Measuring Instruments

The following scales/indexes were used to measure older respondents' quality of life: general health status, mental health status, self-esteem, and life satisfaction. The Chinese version of these scales/indexes had been validated by local scholars.

The financial status consisted of two variables. The objective one dealt with the respondent's major source of income, which was dichotomized into government aid (Comprehensive Social Security Assistance, Old Age Allowance, Disability Allowance) and non-government sources (savings, salary, pension, support from family members). The subjective one, dealing with respondents' self-reported financial status, was measured on a 5-point single-item scale (from very much less than enough, to not enough, just enough, enough, and more than enough).

The respondents' health status was measured by six variables. Two were subjective and four were objective. The first subjective

variable was self-perceived health status ranging from very poor, to poor, fair, good, and excellent. The second subjective variable was self-reported walking ability (options: walk without help, with a little help, with a walking stick, with a walking quadripod, with a walker, wheelchair, other; in analyzing the data, this variable was dichotomized into walking without help and walking with help). The third to the sixth were objective variables. Respondents' clinically diagnosed health status was measured in terms of the number of illnesses (ranging from 0 to a highest possible score of 20). This measuring tool was originally developed by Chi and Lee (1989). The fourth and fifth variables consisted in asking respondents to report the number of days in hospital and the number of days confined to bed for most of the day in the 3 months prior to the interview. The sixth variable assessed older respondents' mental health. This variable was measured using the Mental Health Scale. This was originally a Geriatric Depression Scale to explore the mental health status of older people living in the community (Radloff, 1977, 1991). Respondents were asked to answer 20 items relating to symptoms they might have experienced in the week prior to the interview on a 4-point scale ranging from 0 to 3. The score was the sum of the component items, with a minimum of 0 and a maximum of 60. Radloff (1991) reported that the scale's split-half correlations were 0.85 for patient groups and 0.77 for normal groups. Coefficient alpha and Spearman-Brown coefficients were 0.90 or above for both normal and patient groups. The Chinese version of this scale was developed and validated by Chi and Boey (1992). The Cronbach's alpha of the present study was 0.896. This score was reasonably high.

Respondents' levels of social activity were measured using the following variables: (1) the kinds of daily activities (such as watching TV, listening to radio programs, exercise, sports, etc.) most likely to be performed by older Chinese people (ranging from 0 to a highest possible score of 15), and (2) the social activities organized by the district elderly community center (ranging from 0 to a highest possible score of 15).

Respondents' self-esteem was measured by Morris Rosenberg's 10-item Self-Esteem Scale developed in 1965. It is

a four-point scale ranging from 1 to 4. The total score of the scale is the sum of its component items. The present Chinese version was translated by the researcher of this project and was tested on different older populations with the aim of improving its reliability. Ward (1977) reported that the original scale's Cronbach's alpha was 0.74. In this study, the Cronbach's alpha, after deleting the item "I wish I could have more respect for myself" because its corrected item-total correlation was below -0.2 , was 0.855. The current score was somewhat higher than the original one.

The Life Satisfaction Scale was originally developed by Neugarten et al. (1961). This scale was later simplified by Wood et al. (1969) with a reliability of 0.79. The latter version was known as the LSI-Z. The present study made use of the LSI-Z to measure older respondents' level of life satisfaction. The Chinese version was translated by the researcher of this project and was used on different occasions with the aim of setting up its reliability. This study calculated the Cronbach's alpha of the present Chinese version used in this study, after deleting the following items on account of their low corrected item-total correlation (below 0.2): "I have made plans for things I'll be doing a month or a year from now," "When I think back over my life, I didn't get most of the important things I wanted," and "In spite of what people say, the lot of the average man is getting worse, not better." The score was 0.798.

There are many ways to define quality of life. Michalos (2004) noted that the measurement of happiness could provide at least one important way to operationalize the concept of quality of life. Researchers have frequently made use of single questions to measure older people's happiness. Saucer and Warland (1982, p. 203) cited a few examples. For instance, Davis posed the following question in the NORC general survey, "Taken all together, how would you say things are these days – would you say that you are very happy, pretty happy, or not too happy?" Rose asked, "In general, how satisfied are you with your life?" Streib used the following item: "On the whole, how satisfied are you with your way of life today?" These researchers conceptually

regarded the single-item indicator as an overall global measure of the respondents' perception of their quality of life. This study made use of a single-item indicator to measure older Chinese people's self-reported quality of life in the course of their aging. This was achieved by asking respondents to rate the following statement: "I am happy much of the time" (options: along a 4-point continuum from strongly agree to strongly disagree). About 7.3% strongly agreed, 56% agreed, 32.1% disagreed, and 4.6% strongly disagreed with the statement, indicating that approximately two-thirds of the respondents were either happy or very happy much of the time.

RESULTS

Older Respondents' Characteristics

Table I shows that over three-quarters (75.2%) of the 109 respondents were female respondents. Close to 60% were between the ages of 75 and 84 (mean = 77.97, SD = 6.19). Male respondents (mean = 74.85, SD = 6.73) were significantly younger than their female counterparts (mean = 79, SD = 5.68) ($t = -3.14$, $p = 0.02$). The years of formal education of these respondents was extremely low, 74.1% having received no formal education, and only 3.8% having received seven or more years of formal education (mean = 1.27, SD = 2.63). Male respondents (mean = 2.77, SD = 3.59) were significantly better educated than female respondents (mean = 0.79, SD = 2.05) ($t = 3.509$, $p = 0.001$). Perhaps because of their advanced age, 68.8% of these people were widowed, and only 5.5% were still married. Statistically, there was a significant difference between the sexes in their marital status ($\chi^2 = 17.460$, $df = 2$, $p = 0.000$). Financially, a majority (73.4%) of these older respondents' major source of income was government aid. Even so, only a comparatively low percentage (20.2%) claimed that they had insufficient money to support their daily expenses.

In relation to older respondents' residential satisfaction, Table I shows that 63.3% of all respondents were satisfied or

very satisfied with their physical environment in their public housing residences. Female older respondents tended to be more satisfied with their physical living environment than male respondents ($t = -2.085$, $p = 0.039$).

As regards health status, over half (54.1%) of the respondents reported that they were in very poor or poor condition. The average number of days staying in hospital three months prior to the interview was 2.45 (SD = 9.78) while the average number of days confined to bed for most of the day was 4.21 (SD = 15.76). There were no significant differences between the two sexes and among the three different age groups in days staying in hospital and in days confined to bed. In addition, the average number of clinically diagnosed illnesses was 3.01 (SD = 1.87). The five most prevalent chronic diseases among the respondents, not shown in Table I, were rheumatism/arthritis (63.3%), high blood pressure (36.7%), liver disease (32.1%), heart disease (24.8%), and gastrointestinal disorders (19.3%).

As regards the level of activities, the average number of older respondents' daily life activities was 7.04 (SD = 3.38). The average number of social activities organized by staff of the district elderly community center which they participated in was 2.6 (SD = 2.81). There were no statistically significant differences between the two sexes and among the three different age groups in terms of their financial status, health status, and levels of social activity (see Table I).

In summary, most of the older respondents living alone were in their late 70s, female, with lower levels of education, widowed, and in poor health. The numbers of days spent in hospital as well as the number of days confined to bed due to poor health were reasonable for their age. Male respondents tended to be younger and better educated than their female counterparts. Over 60% were satisfied with their physical living environment. Many claimed to have sufficient money to live on, even though a majority of them were beneficiaries of government aid. Considering their old age and poor health, their activity levels seemed to be reasonably high.

TABLE I
 Characteristics of the respondents ($N = 109$)

	No. of Case ^a (%)	Mean	SD	r with Q of L
Socioeconomic characteristics				
Gender				
Male	27 (24.8)			-0.005
Female	82 (75.2)			
Age		77.97	6.19	0.157
60-74	28 (25.7)			
75-84	65 (59.6)			
85 and over	16 (14.7)			
Years of formal education		1.27	2.63	0.064
0/kindergarten	80 (74.1)			
1-3	12 (11.1)			
4-6	12 (11.1)			
7-9	2 (1.9)			
10-12	0 (0)			
13+	2 (1.9)			
Marital status				0.091
Never married	19 (17.4)			
Married	6 (5.5)			
Widowed	75 (68.8)			
Separate	5 (4.6)			
Divorced	4 (3.7)			
Financial status		1.27	0.44	0.178
Major sources of income				

Government aids	80 (73.4)			
Non-government supports	29 (26.6)			
Self-reported financial status		3.07	0.75	0.210*
Not enough/very much less than enough	22 (20.2)			
Just enough	59 (54.1)			
More than enough/enough	28 (25.7)			
Residential satisfaction		3.62	0.85	0.209*
Not satisfied/very much dissatisfied	12 (11.0)			
Neutral	28 (25.7)			
Very satisfied/satisfied	69 (63.3)			
Health status				
Self-reported health status		2.61	1.02	0.245*
Very poor/poor	59 (54.1)			
Fair	25 (22.9)			
Excellent/good	25 (22.9)			
No. of days in hospital	108	2.45	9.78	-0.210*
No. of days confined to bed	104	4.21	15.76	-0.316**
No. of illnesses clinically diagnosed	109	3.01	1.87	-0.30**
Mental health	103	35.22	10.72	0.603***
Walking ability	109	1.42	0.50	-0.147
Levels of social activities				
Daily activities	109	7.04	3.38	0.178
Participation in center activities	109	2.60	2.81	0.246*
Self-esteem	104	20.48	4.03	0.501***
Life satisfaction	105	14.89	2.90	0.606***

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^aSome variables may not add up to 109 because of missing cases.

Significant Variables Correlated with Older Respondents' Quality of Life

In using George and Bearon's definition of quality of life to develop the theoretical framework, this paper's purpose was to identify the significant variables needed to answer the first research question, "What are the significant variables related to the quality of life of older Chinese people living alone?" Table I illustrates that variables such as more satisfied with the physical living environment, less self-reported financial strain, self-perceived as having good physical health, staying in hospital for fewer days, staying in bed for fewer days, suffering from fewer diagnosed chronic illnesses, enjoying better mental health, participating in center activities more frequently, maintaining good self-esteem, and enjoying a higher level of life satisfaction, were correlated with the life quality of these older people living alone.

Predictors of Quality of Life of Older Respondents Living Alone

What are the predicting factors of quality of life for older Chinese people living alone? This study employed a step-wise, multiple regression analysis to sort out the predictive factors. Table II shows that mental health, the number of days

TABLE II
Predictors of quality of life of older Chinese respondents ($N = 109$)

	Unstandardized coefficients		Standardized coefficients		
	<i>B</i>	Std. Error	Beta	<i>T</i>	<i>p</i>
Constant	-0.967	0.646		-1.496	0.138
Mental health	0.021	0.007	0.330	3.006	0.003
No. of days in hospital	-0.015	0.005	-0.210	-2.871	0.005
Life satisfaction	0.062	0.020	0.285	3.013	0.003
Self-esteem	0.032	0.015	0.197	2.098	0.039
Age	0.017	0.007	0.177	2.438	0.017

Notes: $R = 0.751$, $R^2 = 0.564$.

staying in hospital, life satisfaction, self-esteem, and age, in significant sequence, were found to be the predictors of their life quality. It must be noted that although age, considered in isolation, was not significantly correlated with quality of life, it was a good predictor when interacting with the captioned variables. It is worth mentioning that among the many predictors, three were subjective, i.e., mental health, self-esteem, and life satisfaction. These were the strongest predictors, contributing a major part of the predictive power for the respondents' quality of life, implying that quality of life is a result of the perceived life situation. In all, these five variables contribute up to 56.4% of the model's explanatory power for the prediction of older people's quality of life ($R = 0.751$).

Predictors of Life Quality of Older Respondents Living Alone who have Children

The Census and Statistics Department has reported that about 60% of older Chinese people living alone have children. The general public would like to know about the quality of life of these people. This takes the readers to the third and fourth research questions: What are the significant correlative variables and predictors of life quality of older Chinese people living alone who have children in Hong Kong?

Table III shows that 58 out of 109 (53.2%) respondents had living children staying in Hong Kong. For the purpose of comparison, the same statistical method was used to run tables for this subsample. It was found that the 58-subsample differed very little from the 109-sample, with the following exception: respondents having children in Hong Kong relied more on non-government financial support (41.4%) ($t = -3.797$, $p = 0.000$). These respondents' relationship with their children tended to be reasonably good (2.74 out of a highest possible score of 4) and they held a comparatively strong belief that their children would support them in their old age (2.2 out of a highest possible score of 3).

TABLE III
 Characteristics of the older respondents with living children ($n = 58$)

	No. of case ^a (%)	Mean	SD	r with Q of L
Socioeconomic characteristics				
Gender				
Male	12 (20.7)			-0.093
Female	46 (79.3)			
Age		78.53	6.83	0.015
60-74	12 (20.7)			
75-84	35 (60.3)			
85 and over	11 (19.0)			
Years of formal education		1.46	3.04	0.122
0/kindergarten	43 (75.4)			
1-3	5 (8.8)			
4-6	6 (10.6)			
7-9	1 (1.8)			
13+	2 (3.5)			
Financial status				
Major sources of income		1.41	0.50	0.203
Government aid	34 (58.6)			
Non-government support	24 (41.4)			
Self-reported financial status		3.14	0.78	0.203
Not enough/very much less than enough	11 (19.0)			
Just enough	31 (53.4)			
More than enough/enough	16 (27.6)			
Residential satisfaction		3.72	0.79	0.168

Not satisfied/very much dissatisfied	6 (10.3)			
Neutral	10 (17.2)			
Very satisfied/satisfied	42 (72.4)			
Health status				
Self-reported health status		2.66	0.95	0.162
Very poor/poor	29 (50.0)			
Fair	18 (31.0)			
Excellent/good	11 (19.0)			
No. of days in hospital	57	3.30	10.81	-0.081
No. of days confined to bed	54	2.19	7.99	-0.020
No. of illnesses clinically diagnosed	58	3.05	1.71	-0.207
Walking ability	58	1.52	0.50	-0.159
Levels of social activity				
Daily activities	58	7.43	3.62	0.203
Participation in center activities	58	2.88	3.01	0.224
Family support				
Relationship with children	54	2.74	0.76	0.271*
Belief in children's support	55	2.20	0.83	0.327*
Self-esteem	57	20.65	4.08	0.620***
Life satisfaction	57	14.81	3.04	0.695***

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

^aSome variables may not add up to 58 (n) because of missing cases.

What would be the correlative variables of their life quality? Table III shows that, statistically, keeping a good relationship with own children, belief in children's support in old age, higher self-esteem, and better life satisfaction were variables correlated with these respondents' quality of life. Table IV shows that a step-wise, multiple regression analysis identified life satisfaction and self-esteem as the predictive factors of life quality of these respondents. This model explained 64.2% of the variance in reported quality of life from a subset of the predictor variables. This result indicates that perhaps older people's quality of life is very much a subjective quantity.

A further statistical analysis revealed that, as shown in Table V, older respondents' belief in children's support in old

TABLE IV
Predictors of quality of life for respondents with living children ($n = 58$)

	Unstandardized coefficients		Standardized coefficients		
	<i>B</i>	SE	Beta	<i>T</i>	<i>p</i>
Constant	-0.123	0.311		-0.395	0.695
Life satisfaction	0.131	0.026	0.590	5.002	0.000
Self-esteem	0.043	0.019	0.271	2.300	0.026

Notes: $R = 0.801$, $R^2 = 0.642$.

TABLE V
Predictors of life satisfaction for respondents with living children ($n = 58$)

	Unstandardized coefficients		Standardized coefficients		
	<i>B</i>	SE	Beta	<i>T</i>	<i>p</i>
Constant	11.075	1.934		5.726	0.000
Belief in children's support	1.586	0.433	0.434	3.665	0.001
Self-reported health status	0.979	0.376	0.315	2.602	0.012
Walking ability	-1.467	0.725	-0.245	-2.023	0.049

Notes: $R = 0.580$, $R^2 = 0.336$.

age, better self-reported health status and good walking ability, in sequential significance, were contributory variables to the respondents' life satisfaction ($R^2 = 0.336$). Likewise, Table VI shows that satisfactory self-reported financial status and better self-reported health status were found to be the significant contributory variables to older respondents' higher levels of self-esteem ($R^2 = 0.225$). In this sense, both life satisfaction and self-esteem were the mediating variables of the quality of life of older respondents living alone who have children in Hong Kong.

TABLE VI
Predictors of self-esteem for respondents with living children ($n = 58$)

	Unstandardized coefficients		Standardized coefficients		
	<i>B</i>	SE	Beta	<i>T</i>	<i>p</i>
Constant	10.007	2.822		3.546	0.001
Self-reported financial status	2.316	0.723	0.400	3.205	0.002
Self-reported health status	1.251	0.537	0.291	2.328	0.024

Notes: $R = 0.475$, $R^2 = 0.225$.

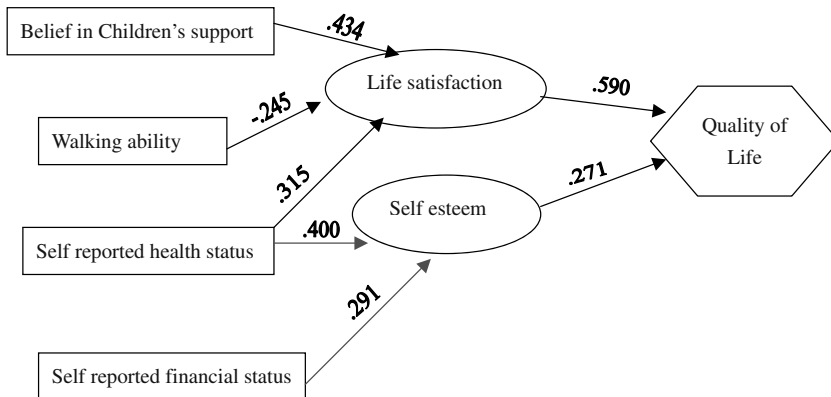


Figure 1. Predictors of quality of life (happiness) for respondents with living children ($n = 58$).

To illustrate this rather complicated predictive relationship, Figure 1 was constructed showing the direction and strength of prediction on life quality of older Chinese respondents living alone who have children staying in Hong Kong. Accordingly, life satisfaction as a mediating variable, together with older respondents' belief in children's support in old age, self-reported health status, and walking ability; and self-esteem as another mediating variable, together with self-reported health status and self-reported financial status, were crucial predictors of quality of life (operationalized in terms of happiness) of older respondents living alone who have children in Hong Kong.

SUMMARY AND DISCUSSION

The findings of this study indicate that most of the older respondents in the lower socioeconomic stratum of society are in their late 70s, female, poorly educated, widowed, and mainly beneficiaries of government aid. A majority of these older respondents claim that they have enough or more than enough money to cover their daily expenses regardless of the major source of income, implying that they have built up a sense of mastery in the management of their living costs. This is a significant variable correlated with their quality of life.

It is interesting to note that women have a higher residential satisfaction than their male counterparts, even though the overall level of satisfaction is comparatively high across the two sexes. Perez et al. (2001) reported that most older people are satisfied with their residential environment, and older females have higher residential satisfaction than males. Their finding is echoed in the findings of this study. In Hong Kong, to live in public housing provided by the government is a blessing for many older people. If their mental and physical health permits, they have a relatively good chance to age in the same place. Their sense of security in having adequate housing and the feeling that they can cope well with environmental stress play an important role in maintaining their quality of life.

The regression model of quality of life has identified the following predictors: mental health, the number of days in hospital, life satisfaction, age, and self-esteem. Like many of the findings in the west and in Hong Kong, health-related variables are important predictors because they reduce medical costs, they allow older people to maintain social contact with the outside world, to participate in preferred activities, as well as to engage in social activities. Good health functioning is also a sign of self-maintenance and independence. As George and Bearon (1980) have said, it promotes older people's subjective experience of life. This study reports that people with higher self-esteem are more satisfied with their life as they age. It is widely acknowledged that unlike people with power and prestige who are highly respected by their fellow citizens, people of lower socioeconomic background normally have to struggle to maintain their self-esteem. Maintaining one's self-esteem significantly contributes to one's life quality.

What are the correlative and predictive variables of life quality of older people living alone who have children in Hong Kong? This study reports that even though the responses from the subsample differ little from those of the original sample (i.e., the 109-sample), the subsample respondents rely more on their children's support both financially and emotionally. The correlative variables of their quality of life seem to focus on this dimension: keeping a good relationship with own children, belief in children's support in old age, higher self-esteem, and better life satisfaction. Further, the regression model identifies life satisfaction and self-esteem as the mediating variables in predicting these respondents' quality of life. Their life satisfaction is enhanced when they have a good relationship with children and a belief in children's support in old age. In addition, enjoying better health status plays an important role in raising the level of life satisfaction. Similarly, older respondents' self-esteem will be improved by a satisfactory self-reported health status and better self-reported financial status.

In conclusion, belief in being taken care of in old age by family members makes older respondents proud of themselves. Good physical health enables them to move around, to keep up

their social life, and to be independent, leading to enhanced levels of life satisfaction. A satisfactory financial condition releases older respondents from monetary stress, and produces a better self-reported health status, and better self-esteem. Obviously, good family support, less financial strain, and good physical health status (self-reported), all subjective variables, are the crucial elements in promoting quality of life for those who have children in Hong Kong.

George and Bearon (1980) have indicated that older people's health status, self-esteem, life satisfaction, and absence of financial stress play a crucial role in promoting their quality of life. The results of this study show that their definition is remarkably effective and helpful for the purpose of identifying predictive factors for the life quality of older Chinese people living alone.

LIMITATIONS

The present study is a cross-sectional one, illustrating the current predictive factors for the quality of life of older respondents. It is known that the perception of quality of life may change over time. There is a need for conducting longitudinal studies to further explore the issue in a systematic manner. The small sample size and the lower socioeconomic status of the older respondents in this study might suggest that findings of this study cannot be generalized to all older people living alone. In the interests of promoting quality of life among older Chinese people living alone, as well as the older population in general, additional studies are needed with larger sample size and taking respondents with more broadly based population characteristics.

ACKNOWLEDGEMENTS

This study was made possible by a grant from the Chinese University of Hong Kong (project code: 2020620). I wish to thank Mr Sui-Chung Lo for his generous assistance in data entry and analysis.

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ECONOMIC STRESS, EMOTIONAL QUALITY OF LIFE,
AND PROBLEM BEHAVIOR IN CHINESE
ADOLESCENTS WITH AND WITHOUT
ECONOMIC DISADVANTAGE

ABSTRACT. The relationships between perceived economic stress (current economic hardship and future economic worry) and emotional quality of life (existential well-being, life satisfaction, self-esteem, sense of mastery, psychological morbidity) as well as problem behavior (substance abuse and delinquency) were examined in 1519 Chinese adolescents with and without economic disadvantage. Results showed that perceived economic stress was related to emotional quality of life as well as problem behavior in adolescents and the relationships were generally stronger in adolescents with economic disadvantage than in adolescents without economic disadvantage. Adolescents with higher levels of emotional quality of life displayed lower levels of adolescent problem behavior. Finally, adolescents with economic disadvantage displayed higher levels of current economic hardship and future economic worry than did adolescents without economic disadvantage.

KEY WORDS: adolescent problem behavior, Chinese adolescents, economic disadvantage, economic stress, quality of life

Despite the intensification of poverty in the global context and the negative impact of economic disadvantage on adolescent development, effort to conduct research on poverty has not substantially increased. Orthner (1996) commented that study of poverty “has not been accorded the level of research attention as families in middle class” (p. 589) and Luthar (1997) remarked “there is a need for greater attention to theoretical conceptualizations regarding ‘normative development’ in the context of poverty” (p. 579). Two areas that deserve more attention are how perceived economic stress is related to adolescent emotional quality of life as well as problem behavior

and how emotional quality of life is related to problem behavior in adolescents experiencing economic disadvantage.

Theoretically, family ecological models generally assert that family economic hardship adversely affects the adjustment of adolescents experiencing economic disadvantage. The related propositions are exemplified in the Family Stress Model proposed by Conger et al. (2000). According to this model, the role of economic pressure in adolescent adjustment would involve the following mechanisms: (a) economic stress leads to parents' emotional distress, (b) parents' emotional distress leads to marital conflict or instability, (c) parents' emotional distress and marital conflict or instability leads to disrupted parenting, (d) disrupted parenting leads to adolescent maladjustment.

Empirically, there are studies showing that perceived economic stress is associated with the adjustment of adolescents experiencing economic disadvantage. Lempers et al. (1989) showed that economic stress had both direct and indirect effect on depression–loneliness distress and indirect effect on delinquency and drug use in poor adolescents. Other researchers found that economic disadvantage exerted negative influences on family processes, such as marital quality and parenting of the parents, which affected the development of emotional distress (Ge et al., 1992), internalization and externalization symptoms (Conger et al., 1994), socio-emotional problems, including anxiety, cognitive distress and self-esteem problem (McLoyd et al., 1994), and school performance problem (Coley and Chase-Lansdale, 2000) in poor adolescent children. Whitbeck et al. (1997) further reported that deterioration of the parents' working conditions and family economic hardship impaired parents' parenting behavior which in turn negatively affected children's efficacy.

A cursory examination of the available literature on the linkage between perceived economic stress and adolescent emotional quality of life and problem behavior reveals several observations. First, while studies have been carried out to examine perceived economic stress in parents (e.g., Elder et al., 1995; Hilton and Desrochers, 2000), couples (Kinnunen and Pulkkinen, 1998) and adults (Dooley and Catalano, 1984;

Aldwin and Revenson, 1986; MacFadyen et al., 1996; Gomel et al., 1998), perceived economic stress in adolescents has been rarely researched. Even in those studies in which parents and adolescents were included (e.g., Conger et al., 1994; Ge et al., 1992; Whitbeck et al., 1997), perceived economic stress was based on the parents' report rather than adolescents' report. Because parents and adolescents may have different views of the family (e.g., Shek, 1999) and their perceptions of economic stress were different (Shek, 2003b), there is a need to examine perceived economic stress from the perspective of adolescents experiencing economic disadvantage.

Second, there is a wide variation on how perceived economic stress could be measured. Besides objective indicators of economic stress (e.g., per capita family income), subjective measures of economic hardship (e.g., perceived economic stress or hardship) have been employed to assess the stress arising from unmet needs and inadequate financial resources. From the stress and coping literature (Lazarus and Folkman, 1984), perceived economic hardship is a key aspect of the stressful experience of economic disadvantage (Barrera et al., 2001). However, there are few well-conceived and validated measures of perceived economic stress (Barrera et al., 2001). In addition, some researchers have used a single item to assess perceived economic stress: Takeuchi and Williams (1991) employed one item to measure whether the parents regarded their household income was adequate to meet their needs; McLoyd et al. (1994) used one item to measure adolescents' perception of economic stress; Lavee et al. (1996) used one item to measure economic well-being of the family; Kinnunen and Pulkkinen (1998) used one item to assess expected economic strain in future. While the employment of a single item to assess perceived economic stress has the advantages of convenience and comprehensiveness, its reliability cannot be easily assessed.

Third, while some attempts have been conducted to study perceived economic stress and psychological symptoms, emotional distress, delinquency and substance abuse (Dooley and Catalano, 1984; Ge et al., 1992; McLoyd et al., 1994), few researchers have used measures of positive mental health as

developmental outcome indicators. Some interesting exceptions are found in the literature: Whitbeck et al. (1997) reported that working conditions and economic stress influenced father's parenting which subsequently affected the children's sense of efficacy; McLoyd et al. (1994) found that adolescents with higher perceived economic hardship reported lower self-esteem; Stern et al. (1999) showed that poverty was related to adolescent internalizing problems, such as lowered self-esteem. In short, it would be theoretically illuminating if measures of negative mental health (e.g., psychological distress) and positive mental health (life satisfaction, meaning in life, self-worth or sense of mastery) could be included simultaneously in a single study to examine the emotional quality of life of poor adolescents.

Furthermore, the relationships between economic stress and adolescent developmental outcomes have seldom been examined with reference to the concept of quality of life. While there are different views on the definitions of quality of life, there is general agreement amongst researchers (e.g., Felce and Perry, 1995; Wallander et al., 2001) that the concept is a multi-dimensional one, including material well-being (finance, income, housing quality, transport), physical well-being (health, fitness, mobility, personal safety), social well-being (personal relationships, community involvement), emotional well-being (positive affect, mental health, fulfillment, satisfaction, faith/belief, self-esteem), and productive well-being (competence, productivity). In this study, several indicators of the emotional well-being domain of quality of life, including existential well-being, life satisfaction, self-esteem, sense of mastery, and general psychological health were examined.

Fourth, besides current economic stress, poor people may also have worry over future economic condition or anticipated economic hardship. From the stress and coping perspective (Lazarus and Folkman, 1984), stress arises when one evaluates that available resources are not adequate to meet the demand and stress would intensify if the discrepancy were expected to continue. Therefore, anticipated economic stress or worry over future economic condition is an important area to consider in the study of perceived economic stress. However, most of the

available studies in this area have focused on current economic stress and few attempts have examined future economic stress or worry. Among those studies in which future economic worry was measured, some researchers used only one item to assess expected economic strain in future (e.g., Kinnunen and Pulkkinen, 1998).

Fifth, existing studies pertinent to the linkage between perceived economic stress and adolescent adjustment have been predominately conducted in Western societies and no published scientific studies based on Chinese people have been reported (e.g., Shek, 2002, 2003a, 2003b). From a cross-cultural perspective, the lack of related research data in the Chinese context would motivate one to ask whether perceived economic stress would have any influence on the psychosocial adjustment of Chinese adolescents, and whether such influence would be different from those phenomena observed in the Western culture. These questions are legitimate for cross-cultural differences in poverty experience might lead to different findings based on Chinese people who constitute roughly one-fifth of the world's population. For example, the Chinese beliefs of "che de ku zong ku, fang wei ren shang ren" (hardship increase stature) and "ren ding sheng tian" (man is the master of his own fate) might moderate the impact of economic stress on the emotional quality of life of poor adolescents.

Shek (2003b) examined the association between perceived economic stress (current economic hardship and future economic worry) and emotional quality of life and problem behavior in 229 Chinese adolescents using children and parental reports of perceived economic stress. Results showed that higher levels of economic stress based on ratings obtained from different sources were generally related to adolescent adjustment. Although this study is a pioneering study in the Chinese context, one limitation of the study is its small sample size. In addition, the study cannot give any indication on the linkage between economic stress and adolescent emotional quality of life and problem behavior in the general adolescent population.

Finally, there are some research findings on the linkage between emotional quality of life and problem behavior in

adolescents (e.g., Lam and Rosenheck, 2000). With reference to substance abuse, researchers have reported the linkages between substance abuse and life satisfaction (Newcomb and Bentler, 1986; Zullig et al., 2001), mastery (Lieb and Young, 1994; Scheier and Botvin, 1996), self-esteem (Miyamoto et al., 2001) and depression (Bovasso, 2001). With reference to delinquent behavior, there are research findings on the linkage between self-esteem and delinquency (Jang and Thornberry, 1998), although few studies have been conducted to examine the relationships between life satisfaction as well as mastery and delinquency. In addition, few studies have examined the linkages between quality of life and adolescent problem behavior in adolescents with economic disadvantage.

According to the tension reduction model (e.g., Stockwell, 1985), psychological distress and lack of satisfaction about life would promote adolescent problem behavior. Based on the existential frameworks such as logotherapy advanced by Frankl (1984), a lack of life meaning (i.e., existential vacuum) would cultivate adolescent problem behavior. Finally, self-efficacy models (e.g., Bandura, 1977, 1989) propose that a higher level of mastery is related to a lower level of adolescent problem behavior.

The data reported in this article are based on a cross-sectional study of the emotional quality of life and problem behavior of adolescents in Hong Kong. (e.g., Shek, 2004) The focus of this paper is on the following questions: (a) What are the relationships between perceived economic stress (current economic stress and future economic worry) and adolescent emotional quality of life (existential well-being, life satisfaction, mastery, self-esteem and general psychological health) and problem behavior (delinquency and substance abuse) in Chinese adolescents with and without economic disadvantage? (b) What are the relationships between emotional quality of life and problem behavior in Chinese adolescents with and without economic disadvantage? (c) Do adolescents with and without economic disadvantage differ in their perceived economic stress in terms of current economic stress and future economic worry?

METHOD

Participants

The study was based upon the responses of 1519 secondary school students aged between 11 and 18 years (733 males and 762 females). They were all Secondary 1 to Secondary 3 students recruited from four aided schools in Hong Kong, with one school admitting students with best academic achievement, two schools admitting students with next best academic achievement, and one school admitting students with the worst academic achievement. Regarding the economic status of the participants, the respondents were asked to indicate whether their families were receiving Comprehensive Social Security Assistance (CSSA) or full Textbook Allowance (TBA). In Hong Kong, families receiving CSSA or full TBA can be regarded as families with financial difficulty. A total of 44 participants did not indicate the financial situation of the family. For the rest of the participants, 80 adolescents responded that their families were receiving Comprehensive Social Security Assistance (CSSA) and 88 adolescents were receiving full Textbook Allowance (TBA). These participants formed the Poor Group ($N = 168$). For participants who did not receive CSSA or TBA, they formed the Non-Poor Group ($N = 1307$). There were no differences between the two groups in terms of mean age (13.5 and 13.5 in the Poor Group and Non-Poor Group, respectively), gender ratio (47.6% and 49.2% of the participants were boys in the Poor Group and Non-Poor Group, respectively), and mean number of persons in the family (4.4 and 4.4 in the Poor Group and Non-Poor Group, respectively).

*Instruments**Assessment of Perceived Economic Stress*

Based on a review of the literature (e.g., Conger et al., 1994; Whitbeck et al., 1997), four items were developed to measure current economic stress (Current Economic Stress Scale: CESS). For the first item, the respondents responded to the

question: "in the past six months, has your family had inadequate money to cope with the family expenses?" The respondent could answer "Never", "Rarely", "Sometimes" and "Always". For the second item, the respondents respond to question: "in the past six months, has your family delayed the payment of bills because of financial difficulty?" The respondent could answer "Never", "Rarely", "Sometimes" and "Always". For the third item, the respondents responded to the question: "what has been the economic condition of your family in the past six months?" in terms of "No financial difficulty", "Has some financial difficulty", "Has considerable financial difficulty" or "Has much difficulty". Finally, the respondents were asked to indicate their feeling about the financial situation of the family where the respondent could respond "Has improved", "No change" or "Has deteriorated". This scale was found to be reliable ($\alpha = 0.77$).

Besides current economic hardship, eight items were developed to examine future economic worry (Future Economic Worry Scale: FEWS). The respondents were asked to indicate their worry about the financial situation of their children when they grow up on 8 items. These items include: (a) inability to find jobs; (b) even if they can find jobs, their earning is inadequate to support the family; (c) even if they have ability to further their study, they would have financial difficulty; (d) have to rely on welfare; (e) their financial situation would be difficult; (f) have no financial ability to form a new family; (g) have no abilities to compete with others; (h) cannot escape from the fate of poverty. For each item, the respondent has to respond "Have no worry", "Have some worry", "Have considerable worry" and "Have much worry". There is evidence showing that this scale is internally consistent ($\alpha = 0.90$).

Assessment of Emotional Quality of Life

1. *Existential Well-Being Scale (EXIST)*. The Existential Well-Being Scale, which formed a part of the Spiritual Well-Being Scale, was constructed by Paloutzian and Ellison (1982) to assess life direction and satisfaction. The present findings showed that the EXIST was internally consistent ($\alpha = 0.85$).

2. *Life Satisfaction Scale (LIFE)*. The Satisfaction with Life Scale was designed by Diener et al. (1985) to assess an individual's own global judgment of his or her quality of life. The Chinese version of this scale was translated by the author and adequate reliability of this scale has been reported (Shek, 1992). The scale was found to be internally consistent in the present study ($\alpha = 0.76$).

3. *Chinese Self-Esteem Scale (ESTEEM)*. The Rosenberg Self-Esteem Scale was designed to assess the self-esteem of high school students (Rosenberg, 1979). The Chinese Rosenberg Self-Esteem Scale was developed by the author and acceptable reliability of this scale has been reported (Shek, 1992). Based on factor analysis, 5 items were retained. A higher ESTEEM scale score ($\alpha = 0.77$) indicates a higher level of self-esteem in this study.

4. *Mastery Scale (MAS)*. Modelled after the Mastery Scale of Pearlin and Schooler (1978), the 7-item Chinese Mastery Scale was constructed by the author that attempts to measure a person's sense of control of his or her life. This scale was found to be internally consistent in this study ($\alpha = 0.78$).

5. *The Chinese version of the 30-items General Health Questionnaire (GHQ)*. The General Health Questionnaire was developed to measure current non-psychotic disturbances (Goldberg, 1972). Chan (1985) found that the Chinese GHQ compared favorably with the English version at the scale level and there is evidence suggesting that the GHQ possesses acceptable psychometric properties (Shek, 1989, 1993). Based on the findings of Shek (1993), 15 items based on Factor 1 (Anxiety) and Factor 2 (Depression) of the GHQ were used. Reliability analyses showed that this abridged version of the GHQ was reliable ($\alpha = 0.93$).

Assessment of Problem Behavior

1. *Substance Abuse Scale (DRUG)*. Based on a review of the foreign and local literature, eight items were developed to examine the respondents' frequency of using alcohol, tobacco, ice (methylamphetamine), cannabis, cough mixture, organic solvent, tranquilizers and narcotics. Reliability findings showed

that the scale was reliable ($\alpha = 0.56$; mean inter-item correlation = 0.35).

2. *Delinquency (DELIN)*. Based on a review of the literature (e.g., Shek and Ma, 1997), twelve items were developed to examine the respondents' frequency of engaging in antisocial behavior. The related behavior includes stealing, cheating, truancy, running away from home, damaging others' properties, assault, having sexual relationship with others, gang fighting, speak foul language, staying away from home without parental consent, strong-arm others, and break in others' places. Reliability showed that this scale was reliable ($\alpha = 0.75$).

Based on the family ecological models (Conger et al., 2000) and the existing research findings (Shek, 2003b), it was predicted that the economic stress variables would be significantly associated with the various indicators of emotional quality of life and adolescent problem behavior. Specifically, it would be expected that a lower level of economic stress (lower CESS or FEWS scores) would be associated with better mental health (lower GHQ scores, and higher EXIST, LIFE, ESTEEM and MAS scores) and a lower level of problem behavior (lower DRUG and DELIN scores). Assuming that economic stress plays a more important role in the lives of poor adolescents, it would also be predicted that the linkage between economic stress and emotional quality of life and problem behavior would be stronger in poor adolescents than in non-poor adolescents.

Based on the predictions of different models (tension reduction model of Stockwell, 1985; life meaning framework of Frankl, 1984; self-efficacy model of Bandura, 1977, 1989), it would be expected that measures of positive and negative mental health (GHQ, life satisfaction and self-esteem), existential well-being and mastery would be associated with adolescent problem behavior indexed by substance abuse and delinquency. Finally, it would be expected that adolescents experiencing economic disadvantage would display higher levels of current economic stress and future economic worry than adolescents without economic disadvantage.

Procedures

The purpose of the study was mentioned and the confidentiality of the data collected was repeatedly emphasized to all of the students in attendance on the day of testing. The students were asked to indicate their wish if they did not want to participate in the study (i.e., "passive" informed consent was obtained from the students). All participants responded en masse to all the instrument scales in the questionnaire in a self-administration format. Adequate time was provided for the subjects to complete the questionnaire. The questionnaire took roughly 45 to 60 minutes to complete.

RESULTS

Correlation coefficients on the linkages between the perceived economic stress variables and different measures of adolescent emotional quality of life and problem behavior are presented in Table I. Because several correlation analyses were carried out in different samples, the multistage Bonferroni procedure (Larzelere and Mulaik, 1977) was carried out to determine those significant correlations that are not attributable to Type 1 error. The data generally show that those who perceived more current economic stress and future economic worry displayed worse emotional quality of life and more problem behavior and this observation was found in both Poor Group and Non-Poor Group. However, in terms of the relative strength of association between current economic stress and emotional quality of life, the magnitude of related correlation coefficients was found to be stronger in the Poor Group than in the Non-Poor Group. Regarding the relationships between future economic worry and problem behavior, while there were significant correlation coefficients in both groups, the relationships appeared to be stronger in the Poor Group than in the Non-Poor Group. Finally, the magnitude of the correlation coefficients pertinent to the linkage between future economic worry and emotional quality of life appeared to be stronger than those related to the linkage between future economic worry and problem behavior.

TABLE I

Correlation coefficients on the linkages between perceived economic stress (current economic stress and future economic worry) and measures of adolescent emotional quality of life and problem behavior

Variables	Total (<i>N</i> = 1519)	Non-Poor (NP) (<i>N</i> = 1307)	Poor (P) (<i>N</i> = 168)	P > NP
<i>CESS</i>				
EXIST	-0.19*	-0.17*	-0.31*	Yes #
LIFE	-0.23*	-0.23*	-0.30*	Yes
ESTEEM	-0.16*	-0.13*	-0.26*	Yes
MAS	-0.22*	-0.19*	-0.35*	Yes #
GHQ	0.24*	0.23*	0.41*	Yes #
DELIN	0.16*	0.12*	0.24*	Yes
DRUG	0.08*	0.05	0.17	Yes
<i>FEWS</i>				
EXIST	-0.33*	-0.33*	-0.32*	No
LIFE	-0.25*	-0.24*	-0.30*	Yes
ESTEEM	-0.32*	-0.32*	-0.30*	No
MAS	-0.35*	-0.34*	-0.39*	Yes
GHQ	0.39*	0.39*	0.44*	Yes
DELIN	0.12*	0.09*	0.25*	Yes #
DRUG	0.08*	0.04	0.27*	Yes #

Notes: EXIST = Existential Well-Being Scale.

LIFE = Life Satisfaction Scale.

ESTEEM = Self-Esteem Scale.

MAS = Mastery Scale.

GHQ = General Health Questionnaire.

DELIN = Delinquent behavior.

DRUG = Substance Abuse Scale.

A two-tailed multistage Bonferroni procedure was used to obtain the data. *pFW* is based on the familywise Type 1 error rate; *pT* is based on the Type 1 error rate per test.

**pFW* < 0.05, *pT* < 0.0036 in the total sample; *pFW* < 0.05, *pT* < 0.025 in the non-poor sample; *pFW* < 0.05, *pT* < 0.05 in the poor sample.

#Significant difference between the Non-Poor Group and Poor Group at the 5% level (one-tailed test).

The findings in Table II generally showed that emotional quality of life was associated with adolescent problem behavior. In particular, the relationship between self-esteem and substance

TABLE II
Correlation coefficients on the linkages between adolescent emotional quality of life and adolescent problem behavior

Variables	Total (<i>N</i> = 1519)	Non-Poor (NP) (<i>N</i> = 1307)	Poor (P) (<i>N</i> = 168)	P > #P
<i>DELIN</i>				
EXIST	-0.26*	-0.24*	-0.34*	Yes
LIFE	-0.23*	-0.21*	-0.30*	Yes
ESTEEM	-0.15*	-0.13*	-0.17*	Yes
MAS	-0.22*	-0.20*	-0.30*	Yes
GHQ	0.21*	0.22*	0.14	No
<i>DRUG</i>				
EXIST	-0.16*	-0.15*	-0.19*	Yes
LIFE	-0.16*	-0.15*	-0.21*	Yes
ESTEEM	-0.11*	-0.09*	-0.23*	Yes #
MAS	-0.14*	-0.13*	-0.20*	Yes
GHQ	0.17*	0.16*	0.19*	Yes

Notes: EXIST = Existential Well-Being Scale.

LIFE = Life Satisfaction Scale.

ESTEEM = Self-Esteem Scale.

MAS = Mastery Scale.

GHQ = General Health Questionnaire.

DELIN = Delinquent behavior.

DRUG = Substance Abuse Scale.

A two-tailed multistage Bonferroni procedure was used to obtain the data. *pFW* is based on the familywise Type 1 error rate; *pT* is based on the Type 1 error rate per test.

**pFW* < 0.05, *pT* < 0.005 in the total sample; *pFW* < 0.05, *pT* < 0.005 in the non-poor sample; *pFW* < 0.05, *pT* < 0.05 in the poor sample.

Significant difference between the Non-Poor Group and Poor Group at the 5% level (one-tailed test).

abuse was significantly stronger in the Poor Group than in the Non-Poor Group.

Compared with the Non-Poor Group, the Poor Group displayed a higher level of current economic stress (mean = 5.61, SD = 2.29 in the Poor Group, mean = 4.64, SD = 1.77 in the Non-Poor Group, $t = -5.30$, $p < 0.0001$, effect size = 0.48). Similarly, the Poor Group displayed a relatively higher level of future economic worry (mean = 16.25, SD = 5.44 in

the Poor Group, mean = 17.73, SD = 5.99 in the Non-Poor Group, $t = 3.04$, $p < 0.01$, effect size = 0.26) than the Non-Poor Group.

DISCUSSION

With reference to the first research question, the present study shows that both current economic stress and future economic worry were related to adolescent emotional quality of life and problem behavior. The findings are generally consistent with the literature that economic stress is a risk factor for adolescent development (e.g., Lempers et al., 1989; Shek, 2003b). Furthermore, the present findings give support to the hypothesis that anticipated economic stress or future economic worry is related to the adjustment of adolescents experiencing economic disadvantage. Because the relationships between future economic worry and adolescent emotional quality of life and problem behavior have rarely been researched, the present findings can be regarded as pioneering additions to the literature, particularly in a Chinese context.

There are four possible explanations of the above finding on the linkage between perceived economic stress and adolescent emotional quality of life and problem behavior. The first interpretation is that perceived economic stress exerts direct and/or indirect impacts on adolescent emotional quality of life and problem behavior. Many researchers have shared this view and data arising from previous cross-sectional studies have been interpreted in the light of this hypothesis. For example, based on a cross-sectional study of adolescents' responses to measures of perceived economic stress and psychological well-being, Lempers et al. (1989) stated that "economic hardship directly increases depression and loneliness" (p. 31). Second, it is possible that those with poorer emotional quality of life and more problem behavior tend to perceive a higher level of economic stress (i.e., perceptual distortion hypothesis). However, because the present sample was drawn from a non-clinical population, this possibility may not be high (Shek, 2002).

Third, the data can be explained in terms of the concept of spurious correlation, such as response styles. Finally, we should be mindful of the possibility that emotional quality of life and problem behavior of the adolescent (e.g., distress and lack of life meaning) may be a precursor of loss of opportunities (e.g. interruption of studies) that would eventually intensifies perceived economic stress. Because the present research design is cross-sectional in nature, all of the above four interpretations are plausible. However, this limitation is also intrinsic to the cross-sectional studies conducted previously.

Assuming that perceived current economic stress is causally related to the emotional quality of life and problem behavior of adolescents, the present findings show that the strength of the relationships was relatively stronger in poor adolescents than non-poor adolescents. This observation suggests that current economic stress would have a stronger negative impact on the existential well-being, mastery and general psychological health in poor adolescents than in non-poorer adolescents. On the other hand, future economic worry was more strongly related to adolescent problem behavior in poor adolescents than in non-poor adolescents. These observations generally suggest that different types of perceived economic stress may have differential impacts on different developmental outcomes in adolescents experiencing economic disadvantage. In some sense, future economic worry represents a loss of control that would trigger substance abuse and delinquent behavior because such behaviors would give adolescents some sense of control. In short, the present findings suggest that perceived economic stress is a risk factor in the development of emotional quality of life and problem behavior in adolescents, particularly adolescents experiencing economic disadvantage.

Regarding the linkage between emotional quality of life and adolescent problem behavior, the findings generally show that poorer emotional quality of life was related to higher levels of adolescent problem behavior. However, except the linkage between self-esteem and substance abuse, the observed linkages were relatively similar in poor and non-poor adolescents. Because there are few studies on the linkages between mastery

as well as life meaning and problem behavior, the present findings are interesting additions to the literature. In addition, because few studies have examined this issue in the Chinese context and in poor adolescents, the present findings are pioneering. The present findings suggest that there is a need to understand the role of emotional quality of life in adolescent problem behavior. This observation is important because emotional quality of life is not included in some of the reviews of risk factors for substance abuse (Hawkins et al., 1992).

Similar to the above findings, there are also four possible explanations of the findings. Assuming that emotional quality of life is causally related to adolescent problem behavior, the present findings can be accommodated within the tension reduction models (e.g., Stockwell, 1985) that distress is positively related to adolescent problem behavior. The relationship between existential well-being and problem behavior can also be accounted for by Frankl's (1984) framework of logotherapy. Finally, the negative relationship between mastery and problem behavior can be accommodated within the self-efficacy model of Bandura (1977, 1989), who argued that perceived control is intimately related to human behavior.

The present findings showed that there were differences in perceived economic stress amongst poor and non-poor adolescents. These findings are consistent with the differences in the objective economic conditions of both groups. However, besides current economic stress, the present findings clearly demonstrate that future economic worry also differed between these two groups. Practically, the findings suggest that human service professionals should be sensitive to the current economic stress and future economic worry of adolescents experiencing economic disadvantage.

There are several limitations of the present study. First, because this is a cross-sectional study, the direction of influences amongst perceived economic stress, emotional quality of life, and problem behavior cannot be firmly established. Definitely, longitudinal data are indispensable in clarifying the direction of influences between perceived economic stress and adolescent emotional quality of life and problem behavior.

Second, because the present findings are based on Chinese adolescents in Hong Kong, their generalizability may be limited and there is a need to replicate the present findings in different Chinese communities. Third, because the assessment of economic stress, emotional quality of life and problem behavior were based on adolescents' perspective, it would be desirable to include the parents' perspective to look at the related issues. Fourth, although there are research finding supporting the construct validity of the measures of economic stress adopted in this study, there is a need to further clarify the predictive validity of the measures, particularly the measure assessing future economic worry. Finally, because economic disadvantage was operationalized in terms of CSSA and full TBA recipients, it is necessary to study the emotional quality of life of adolescents from low-income families (i.e., those families not applying for CSSA or TBA but experiencing substantial economic stress) in future. Despite these limitations, the present findings can be regarded as pioneering and they constitute interesting additions to the literature.

ACKNOWLEDGEMENTS

This work was financially supported by the Research Grants Council of the Hong Kong Special Administrative Region (Grant CUHK4087/99H) and the Wofoo Foundation. Address all correspondence to Daniel T.L. Shek, Department of Social Work, The Chinese University of Hong Kong, Shatin, Hong Kong (E-Mail: Dabielshek@cuhk.edu.hk).

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A LONGITUDINAL STUDY OF CHINESE CULTURAL BELIEFS ABOUT ADVERSITY, PSYCHOLOGICAL WELL-BEING, DELINQUENCY AND SUBSTANCE ABUSE IN CHINESE ADOLESCENTS WITH ECONOMIC DISADVANTAGE

(Accepted 2 March 2005)

ABSTRACT. This longitudinal study examines the relationships between Chinese cultural beliefs about adversity and psychological well-being and problem behavior in 199 Chinese adolescents with economic disadvantage. Results showed that endorsement of Chinese cultural beliefs about adversity was concurrently related to measures of adolescent psychological well-being (existential well-being, mastery, life satisfaction, self-esteem and general psychiatric morbidity) and problem behavior (substance abuse and delinquency) at Time 1 and Time 2. Partial correlation and multiple regression analyses showed that while Chinese beliefs about adversity at Time 1 predicted changes in developmental outcomes at Time 2 (except self-esteem), developmental outcome variables at Time 1 did not predict changes in endorsement of Chinese cultural beliefs about adversity at Time 2. The present findings suggest that identification with Chinese cultural beliefs about adversity is an important factor that influences the psychosocial adjustment of Chinese adolescents experiencing economic disadvantage.

KEY WORDS: adversity, Chinese adolescents, cultural beliefs, economic disadvantaged, longitudinal study, psychological well-being

Research findings show that with the presence of protective factors, adolescents may adjust well despite the presence of adversity. Among the different types of protective factors (Smith and Carlson, 1997; Hauser, 1999), personal belief is an important protective factor governing adolescent resilience. Different researchers have found that different personal beliefs, such as optimism and beliefs about control in lives (Werner, 1989), self-efficacy (Rutter, 1985), as well as faith and religious beliefs (Werner and Smith, 1992) were important protective factors.

Although research findings show that personal beliefs (such as beliefs about control and the future) are related to adolescent resilience, there are limited studies examining how culture, particularly cultural beliefs about adversity, is related to resilience (Shek et al., 2003; Shek, 2004). Pepitone (1994) asserted that “beliefs are concepts about the nature, the causes, and the consequences of things, persons, events and processes” and they are “social constructions that are part of a culture and have guided the socialization of those who share that culture” (p. 140). Phinney (1996a) suggested that one important aspect of ethnicity is concerned about the degree to which a person assumes or identifies with the “norms, values, attitudes, and behaviors that are typical of an ethnic group and that stem from a common culture of origin transmitted across generations” (p. 145). Based on the above views, “cultural beliefs about adversity” may refer to those concepts about the nature of adversity such as its causes, consequences and the proper coping behavior.

One may ask how cultural beliefs about adversity are related to the psychosocial adjustment of people experiencing adversity. Theoretically, there are at least three ways how cultural beliefs may influence the impact of adversity on people experiencing adversity (Shek et al., 2003; Shek, 2004). First, cultural beliefs may influence how adversity is defined and conceptualized. If adversity were seen as a chance for personal development that is eventually beneficial to the individual concerned, tolerance of the threat would be easier. On the other hand, if adversity were seen as punishment from God, retribution or transmigration, it would be more difficult for the person concerned to accept it. The notion that cultural beliefs shape one’s interpretation of adversity is consistent with the basic assertion of the cognitive perspective that people are not disturbed by things themselves (i.e., adversity *per se*) but by their interpretations of them (i.e., meaning and interpretation of adversity).

There are empirical studies showing that people in different cultures hold different cultural beliefs about different events. Darke and Freedman (1997) showed that compared with non-Asians, Asian-Americans were more likely to endorse

superstitious beliefs about luck. Lee and Seligman (1997) found that White American students and Chinese students had different attributions for success. Weisz et al. (1997) showed that compared with American parents, Thai parents were more tolerant of a wide range of child behavior and they had higher "parental distress threshold." Awwad (1999) showed that Muslims had strong beliefs in God's will and destiny and such beliefs promoted their refusal to seek help from mental health professionals when they needed help.

Second, cultural beliefs may shape the coping resources and behavior of the individual concerned. McCarty et al. (1999) showed that Thai and American youth have different coping patterns. Rokach (1999) reported that participants with North American, South Asian and West Indian backgrounds coped differently and concluded that "cultural background and the norms and expectations that people assimilate during their formative years are related to the manner in which individuals cope with loneliness" (p. 227). Lagana (2003) showed that traditional Mexican beliefs about pregnancy influenced the behavior of Mexican pregnant women and concluded "selective biculturalism emerged as a protective approach to stress reduction and health promotion" (p. 117).

Third, cultural beliefs may constitute stressors that influence one's adjustment. For example, effort to uphold traditional cultural beliefs in a modern society would be stressful for an adolescent. Bains (2001) showed that traditional cultural beliefs about the etiology and treatment for emotional problems would create conflict for adolescents when they attempted to develop their sense of self. Vargas and DiPilato (1999) also argued that traditional cultural beliefs might not be protective if there was a conflict between the mainstream culture and the ethnic culture. In short, cultural beliefs provide the basis upon which people experiencing adversity make sense of their experience and develop the act of coping; they might also constitute stressors for them as well.

Although there are theoretical grounds for the linkage between cultural beliefs about adversity and adjustment, there are few studies that have examined this issue. Phinney (1996b)

pointed out that related researches in this area are rare and Pepitone (1994) stated “despite their importance in the social life of human subjects, however, the literature of social psychology contains little theory and research on the subject” (p. 139). Although some studies have showed that identification with one’s ethnicity was positively related to self-esteem, the findings are not conclusive (Vargas and DiPilato, 1999). There are also research findings showing that practitioners have not systematically examined cultural beliefs in the direct practice settings. For example, in their study of mental health among South Asian men, Bhui et al. (2002) found that cultural issues including cultural beliefs were rarely discussed and assessed in South Asian service users.

With specific reference to the Chinese culture, very few studies have been conducted to examine Chinese cultural beliefs about adversity and resilience. As pointed out by Leung (1996), research on Chinese beliefs “has been haphazard” (p. 247) and “there is a dearth of theorizing and data on the belief systems of Chinese” (p. 262). Although Leung (1996) highlighted several categories of cultural beliefs in the Chinese culture, Chinese cultural beliefs about adversity are unfortunately not included in his discussion.

Roughly speaking, Chinese cultural beliefs about adversity can be classified into two categories. On the one hand, there are cultural beliefs that emphasize the positive value of adversity and men’s capacity to overcome adversity (i.e., positive beliefs about adversity). Such cultural beliefs are basically shaped by Confucian thoughts where men’s inner strengths and virtues, such as perseverance and tolerance, are strongly maintained (Shek et al., 2003; Shek, 2004). These beliefs are reflected in the sayings “You zhi zhe shi jing cheng” (when there is a will, there is a way) and “Zhi yao you heng xin, tie zhu mo cheng zhen” (if you work hard enough, you can turn an iron rod into a needle).

On the other hand, under the influence of Buddhism and Taoism, superstition and emphasis on fate are intrinsic to the traditional Chinese culture. As a result, there are cultural beliefs that emphasize people’s inability to change adversity (such as fate) and the negative impact of adversity (i.e., negative cultural

beliefs). Some examples of such beliefs include the sayings “hao chou ming sheng cheng” (whether a life is good or bad depends on fate) and “ren qong zhi duan” (poverty stifles ambition).

Empirically, there are only two published studies that have examined the relationship between Chinese cultural beliefs about adversity and adolescent adjustment. In a pioneering cross-sectional study examining the relationship between beliefs about adversity and adjustment in 1519 adolescents, Shek (2004) found that adolescents with stronger endorsement of positive Chinese beliefs (or weaker endorsement of negative Chinese beliefs) about adversity generally had better psychological well-being and school adjustment and less problem behavior, and the relationships were stronger in adolescents with economic disadvantage than in adolescents without economic disadvantage. In another cross-sectional study based on 229 families experiencing economic disadvantage, Shek et al. (2003) showed that adolescents with stronger endorsement of positive Chinese beliefs about adversity generally displayed better psychological well-being and school adjustment and less problem behavior. While these two studies are pioneering studies in the Chinese culture, one major limitation is that they are cross-sectional studies.

Logically speaking, there are several possibilities regarding the linkage between Chinese cultural beliefs about adversity and adolescent adjustment: (a) endorsement of Chinese cultural beliefs about adversity influences adolescent adjustment; (b) adolescent adjustment influences endorsement of Chinese cultural beliefs about adversity; (c) endorsement of Chinese beliefs about adversity and adolescent adjustment influence each other; (d) endorsement of Chinese beliefs about adversity and adolescent adjustment do not influence each other; and (e) the relationship between these two domains is influenced by a third variable (i.e., spurious correlation). Obviously, to examine these possibilities in a rigorous manner, longitudinal studies are indispensable.

A review of the literature shows that there are some theoretical bases for the conjecture that cultural beliefs influence psychosocial adjustment (i.e., the first and third possibilities).

Utilizing the stress and coping model proposed by Lazarus and Folkman (1984), it can be argued that cultural beliefs about adversity may influence how people respond to the questions of "Am I in trouble?" (i.e., primary appraisal) and "What can be done about it?" (i.e., secondary appraisal). Similarly, in the Multicultural Model of the Stress Process (Slavin et al., 1991), it is argued that culture plays an important role in defining the problem and behavioral options in the stress and coping processes. For example, Kim and Omizo (2003) showed that adherence to Asian cultural values inversely predicted the attitude and willingness of Asian-Americans toward seeking professional psychological help. Finally, there are also theoretical propositions in the literature on optimism and fatalism suggesting that stronger endorsement of beliefs that one controls one's life (as revealed in many Chinese cultural beliefs about adversity) is positively related to psychosocial adjustment (Maddux, 1995; Bandura, 1997).

On the other hand, consistent with the spirit of ecological models, psychological well-being may also shape one's endorsement of cultural beliefs about adversity (i.e., the second and third possibilities). Based on self-efficacy theories (Maddux, 1995; Bandura, 1997), it could be predicted that a person who has a strong sense of mastery would identify more with cultural beliefs that emphasize optimism and control. In addition, there are research findings suggesting that poorer psychological well-being would adversely affect cognitive orientations in poor people (Shek, 2004). Based on these models and research findings, it could be hypothesized that poorer psychological adjustment would be related to weaker identification of positive Chinese cultural beliefs about adversity.

Because no published study has been conducted to examine the longitudinal relationship between Chinese cultural beliefs about adversity and adolescent adjustment, this study attempts to examine the concurrent and longitudinal linkages between endorsement of Chinese beliefs about adversity and adolescent adjustment in Chinese adolescents experiencing economic disadvantage. There are two unique features of this study. First, longitudinal data were collected to examine the

bi-directional influences between endorsement of Chinese cultural beliefs about adversity and adolescent adjustment utilizing multiple indicators of adolescent adjustment. Second, in view of the inadequacy of studies studying poor families (Orthner, 1996; Luthar, 1997) and the linkage between endorsement of Chinese cultural beliefs about adversity and adolescent adjustment in Chinese adolescents experiencing economic disadvantage (Shek et al., 2003; Shek, 2004), data were collected from Chinese adolescents experiencing economic disadvantage.

METHOD

Participants

The data for the present analyses were derived from the Wave 1 and Wave 2 data (i.e., Time 1 and Time 2 data) of a longitudinal study on the relationships between psychosocial factors and adolescent adjustment in families with economic disadvantage in Hong Kong. Because most of the families in Hong Kong were two-parent families, a sample involving two-parent families in Hong Kong based on the purposive sampling method was employed (Shek, in press-a, in press-b). A review of the literature shows that purposive sampling method was commonly used in previous studies of families experiencing economic disadvantage.

At Time 1, the data were collected from 229 adolescents (males = 107 and females = 122) and their parents. The mean age of the adolescent, father and mother participants were 14.2, 55.1 and 44.1, respectively at Time 1. The number of families participating in this study compares favorably with similar studies conducted previously (Shek, in press-a, in press-b). The second assessment (Time 2) occurred 1 year after the first assessment (Time 1) where adolescents and parents were asked to respond to the same questionnaires used at Time 1. Follow-up data were obtained from 199 families at Time 2. This group of 199 families, from whom the Time 1 and Time 2 data were collected, constituted the longitudinal sample for the

study. The attrition rate (13.1%) compares favorably with the previous studies (Shek, in press-a, in press-b).

The participants for the present study were recruited from families receiving Comprehensive Social Security Assistance (CSSA sample) or full Textbook Allowance from the Government (TBA sample). In Hong Kong, families receiving CSSA or full TBA can be regarded as families with financial difficulty (see Shek, in press-a, in press-b). The Government of Hong Kong provided CSSA to families with financial need. With the assistance of the Social Welfare Department, intact families receiving CSSA in which there were adolescent children were recruited to participate in the study. There were 167 families consenting to participate in this longitudinal study. For the TBA, the Government of Hong Kong provided school textbook assistance to non-CSSA families with financial need (Shek, in press-a, in press-b). Through the assistance of 10 schools, 62 families with children receiving full TBA were recruited to participate in this longitudinal study.

INSTRUMENTS

Assessment of Chinese cultural beliefs about adversity

Based on the preceding discussion, the Chinese Beliefs about Adversity Scale (CBA) that focuses on Chinese beliefs about adversity was developed by a group comprising psychologists and social workers. There are nine items in this scale, including the following items. (1) “Chi de ku zhong ku, fang wei ren shang ren” (hardship increases stature). (2) “Hao chou ming sheng cheng” (whether a life is good or bad depends on fate). (3) “You zhi zhe shi jing cheng” (when there is a will, there is a way). (4) “Zhi yao you heng xin, tie zhu mo cheng zhen” (if you work hard enough, you can turn an iron rod into a needle). (5) “Ren qong zhi duan” (poverty stifles ambition). (6) “Jiang qin bu zhuo, qin jian nai ku” (diligence is an important factor to overcome poverty). (7) “Ren ding sheng tian” (man is the master of his own fate).

- (8) “Zhi zu chang le” (a contented person is always happy).
 (9) “Jiang xiang ben wu zhong, nan er dang zi qiang” (man is not born to greatness, he achieves it by his own effort).

While items 2 and 5 are concerned with negative cultural beliefs about adversity, the rest of the items can be regarded as items assessing positive cultural beliefs. For items 6 and 9, because adolescents might have difficulty in understanding the meaning embedded in the original classical Chinese expression, two items with equivalent meaning in plain Chinese language were used. For each item, the respondent was requested to indicate his or her degree of agreement with the item on a 6-point scale. After reversing the scores of items 2 and 5, reliability analyses showed that the CBA was reliable ($\alpha = 0.76$ and 0.84 at Time 1 and Time 2, respectively). Higher CBA scores refer to a higher degree of agreement with positive Chinese beliefs about adversity.

Assessment of psychosocial adjustment

Existential Well-Being Scale (EXIST). The 10-item Existential Well-Being Scale, which formed a part of the Spiritual Well-Being Scale, was constructed by Paloutzian and Ellison (1982) to assess life direction and satisfaction. The present findings showed that the EXIST was internally consistent ($\alpha = 0.82$ and 0.85 at Time 1 and Time 2, respectively).

Life Satisfaction Scale (LIFE). The 5-item Satisfaction with Life Scale was designed by Diener et al. (1985) to assess an individual's own global judgment of his or her quality of life. The Chinese version of this scale was translated by the author and adequate reliability of this scale has been reported (Shek, in press-b). The scale was found to be internally consistent in the present study ($\alpha = 0.74$ and 0.76 at Time 1 and Time 2, respectively).

Mastery Scale (MAS). Modeled after the Mastery Scale of Pearlin and Schooler (1978), the 7-item Chinese Mastery Scale was constructed by the author that attempts to measure a

person's sense of control of his or her life. This scale was found to be internally consistent in this study ($\alpha = 0.73$ and 0.78 at Time 1 and Time 2, respectively).

Chinese Self-Esteem Scale (ESTEEM). The Rosenberg Self-Esteem Scale was designed to assess the self-esteem of high school students. The Chinese adapted Rosenberg Self-Esteem Scale (Rosenberg, 1979) was developed by the author and acceptable reliability of this scale has been reported (Shek, in press-b). Based on factor analysis, five items were retained. A higher ESTEEM scale score ($\alpha = 0.77$ and 0.68 at Time 1 and Time 2, respectively) indicates a higher level of self-esteem in this study.

The Chinese version of the 30-item General Health Questionnaire (GHQ). The General Health Questionnaire was developed to measure current non-psychotic disturbances (Goldberg, 1972). Chan (1985) found that the Chinese GHQ compared favorably with the English version at the scale level and there is evidence suggesting that the GHQ possesses good internal consistency, concurrent validity and factorial validity (Shek, 1989, 1993). Based on the findings of Shek (1993), 15 items based on Factor 1 (Anxiety) and Factor 2 (Depression) of the GHQ were used. Reliability analyses showed that this abridged version of the GHQ was reliable ($\alpha = 0.90$ and 0.92 at Time 1 and Time 2, respectively).

While the GHQ can be treated as a measure of mental health in terms of manifested psychiatric symptoms, the other scales can be regarded as tools measuring mental health in terms of subjective well-being and the presence of positive or existential mental health characteristics (Diener, 1984).

Assessment of problem behavior

Substance abuse (DRUG): Based on a review of the foreign and local literature, eight items were developed to examine the respondents' frequency of using alcohol, tobacco, ice (methylamphetamine), cannabis, cough mixture, organic solvent, tranquilizers and narcotics. Reliability findings showed that the scale

was reliable at Time 1 and Time 2 ($\alpha = 0.65$ and 0.72 , respectively).

Delinquency (DELIN): Based on a review of the literature (e.g., Shek, 2002), 12 items were developed to examine the respondents' frequency of engaging in the following antisocial behavior: stealing, cheating, truancy, running away from home, damaging others' properties, assault, having sexual relationship with others, gang fighting, speak foul language, staying away from home without parental consent, strong arm others, and break in others' places. Reliability showed that this scale was reliable ($\alpha = 0.62$ and 0.53 at Time 1 and Time 2, respectively).

On the basis of the above discussion, it was predicted that if endorsement of Chinese cultural beliefs about adversity (CBA scores) predicted the adjustment of poor Chinese adolescents, CBA scores would have significant concurrent and longitudinal association with adolescent psychological well-being and problem behavior variables. In particular, higher CBA scores at Time 1 would predict positive changes in adolescent adjustment over time. Alternatively, if psychosocial adjustment predicted endorsement of Chinese cultural beliefs about adversity indexed by CBA scores, measures of adolescent adjustment would have significant concurrent and longitudinal correlation with CBA scores. In particular, negative adolescent adjustment at Time 1 would predict deterioration in CBA scores over time.

Procedures

During the visit(s) to a family at Time 1 and Time 2, the parents were requested to complete a Parent Questionnaire (containing measures of psychosocial adjustment) and the student concerned was required to complete an Adolescent Questionnaire (containing the above measures of Chinese cultural beliefs about adversity and adjustment) in a self-administration format. Adequate time was provided for the participants to complete the questionnaire. To ensure confidentiality, each participant completed the questionnaire

separately. For those who had problems in comprehending the questions or items, a trained interviewer would ask the questions or items in an interview format.

RESULTS

Sample Attrition

Analyses showed that there were no significant differences between those who dropped out of the study and those in the longitudinal sample in the background demographic variables (age of the father, mother and adolescent children, family income) and adolescent variables (including existential well-being, life satisfaction, self-esteem, sense of mastery, general psychiatric morbidity, substance abuse, delinquency, family functioning, paternal parenting style, maternal parenting style, paternal support and maternal support). There were also no differences between the two groups in terms of the parental variables (including marital quality and psychological well-being of the parents). These observations suggest that sample attrition is not a major source of bias in this study.

Data Reduction

Because there were many developmental outcome variables at Time 1, factor analyses were performed to reduce the data volume. A principal components analysis was performed for the related variables (EXIST, LIFE, ESTEEM, MAS, GHQ, DRUG and DELIN), yielding two factors with eigen values exceeding unity, accounting for 63.1% of the variance. The two-factor solution was then rotated to a varimax criterion for interpretation. The first factor, which could be labeled Mental Health (MH), included EXIST, LIFE, ESTEEM, MAS and GHQ. These measures were basically concerned with mental health characteristics and this factor explained 42.4% of the variance. Factor II explained 20.7% of the variance, which included DRUG and DELIN. Because the items can be regarded as measures of adolescent problem behavior, it was

labeled Problem Behavior (PB). By splitting the total sample into two sub-samples by gender, analyses showed that the coefficients of congruence associated with these two factors in these sub-samples were high (0.99 and 0.94, for MH and PB respectively, $p < 0.001$ for both cases), suggesting that these factors are highly stable.

Similar factor analyses were performed for the Time 2 data. Results showed that two factors could be extracted and they were labeled MH (45.8% of the variance) and PB (20.7% of the variance). Analyses further showed that these two factors were stable across sub-samples based on gender (coefficients of congruence = 0.95 and 0.99 for MH and PB respectively, $p < 0.001$ for both cases). These two dimensions were also found to be highly stable across time (coefficients of congruence = 0.98 and 0.98 for MH and PB respectively, $p < 0.001$ for both cases).

To give a more detailed picture about the linkages between beliefs about adversity and adolescent adjustment, analyses based on the discrete and composite measures of adolescent adjustment were carried out. This strategy permits researchers to gain both a global picture based on the composite measures and a specific picture based on the discrete measures.

Concurrent correlations at Time 1

Correlation coefficients on the linkage between endorsement of Chinese cultural beliefs about adversity and different measures of adolescent adjustment at Time 1 are presented in Table I. Results showed that those who had weaker endorsement of Chinese beliefs about adversity displayed more mental health problems. With specific reference to the composite mental health variable, those who had a stronger identification with positive Chinese beliefs about adversity had better mental health ($r = 0.33$, $p < 0.001$).

Concurrent correlations at Time 2

For the linkages between endorsement of Chinese cultural beliefs about adversity and different measures of adolescent adjustment at Time 2, the data generally show that a lower level of endorsement of Chinese cultural beliefs about adversity was

TABLE I

Pearson correlation coefficients on the relationships between endorsement of Chinese cultural beliefs about adversity and adolescent psychological well-being and problem behavior

	Time 1 CBA Scores	Time 2 CBA Scores
Time 1		
EXIST	0.37***	0.29***
LIFE	0.20**	0.13ns
MAS	0.28***	-0.17*
ESTEEM	0.17*	0.11ns
GHQ	-0.20**	-0.11ns
DRUG	-0.07ns	0.02ns
DELIN	-0.08ns	0.02ns
MH	0.33***	0.23**
PB	-0.04ns	0.05ns
Time 2		
EXIST	0.36***	0.42***
LIFE	0.29***	0.22**
MAS	0.31***	0.35***
ESTEEM	0.20**	0.18*
GHQ	0.30***	-0.28***
DRUG	-0.19**	-0.11ns
DELIN	-0.15*	-0.22ns
MH	0.35***	0.36***
PB	-0.17*	-0.17*

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = non-significant

CBA = Chinese Beliefs about Adversity Scale

EXIST = Existential Well-Being Scale

LIFE = Life Satisfaction Scale

MAS = Mastery Scale

ESTEEM = Self-Esteem Scale

GHQ = General Health Questionnaire

DRUG = Substance Abuse Scale

DELIN = Delinquent behavior

MH = Mental health factor

PB = Problem behavior factor

associated with poorer mental health (indexed by positive mental health and general psychiatric morbidity measures) and a higher level of problem behavior (indexed by the composite

score). With specific reference to the composite outcome variables, those who had a stronger identification with positive Chinese beliefs about adversity had better mental health ($r = 0.36, p < 0.001$) and a lower level of problem behavior ($r = -0.17, p < 0.05$).

Time 1 to Time 2 longitudinal correlations

Correlation coefficients on the linkage between endorsement of Chinese cultural beliefs about adversity at Time 1 and different measures of adolescent psychological adjustment at Time 2 are presented in Table I. The data revealed that adolescents with weaker endorsement of Chinese cultural beliefs about adversity at Time 1 had poorer mental health (indexed by positive mental health and psychiatric morbidity indices) and higher levels of problem behavior at Time 2. With specific reference to the composite outcome variables, those who had a stronger identification with positive Chinese beliefs about adversity had better mental health ($r = 0.35, p < 0.001$) and a lower level of problem behavior ($r = -0.17, p < 0.05$).

To test the possibility that adolescent adjustment influences endorsement of Chinese cultural beliefs about adversity, correlations between measures of adolescent adjustment at Time 1 and endorsement of Chinese cultural beliefs about adversity at Time 2 were computed. Results showed that only three indicators of adolescent psychological adjustment at Time 1 (EXIST, MAS and the MH factor) were related to endorsement of Chinese cultural beliefs about adversity at Time 2 ($r = 0.29, p < 0.001, r = -0.17, p < 0.05$ and $r = 0.23, p < 0.01$, respectively).

Time 1 to Time 2 prospective correlations

To examine the link between endorsement of Chinese cultural beliefs about adversity at Time 1 and adolescent adjustment at Time 2 in a more stringent manner, partial correlations between Time 1 endorsement of Chinese cultural beliefs about adversity and Time 2 adolescent adjustment measures were computed, in which the related Time 1 well-being scores were removed in each prospective correlation. One advantage

TABLE II

Partial correlation coefficients on the links between CBA scores at Time 1 and psychological adjustment at Time 2 with the initial Time 1 level of the criterion variable removed

Time 1, 2 Adjustment	Time 1 CBA Scores	Time 2 CBA Scores
EXIST	0.21**	0.12 ns
LIFE	0.21**	0.02 ns
MAS	0.19**	0.02 ns
ESTEEM	0.14 ^a	0.03 ns
GHQ	-0.24**	0.01 ns
DRUG	-0.19**	0.07 ns
DELIN	-0.13 ^a	0.07 ns
MH	0.20**	0.06 ns
PB	-0.20**	0.09 ns

Notes: * $p < 0.05$, ** $p < 0.01$, ^a $p < 0.10$, ns = non-significant

CBA = Chinese Beliefs about Adversity Scale

EXIST = Existential Well-Being Scale

LIFE = Life Satisfaction Scale

MAS = Mastery Scale

ESTEEM = Self-Esteem Scale

GHQ = General Health Questionnaire

DRUG = Substance Abuse Scale

DELIN = Delinquent behavior

MH = Mental health factor

PB = Problem behavior factor

of using prospective correlation is that it can give an indication of how a predictor variable is related to actual change in a criterion variable over time (e.g., Kenny, 1979). The data presented in Table II show that stronger endorsement of Chinese cultural beliefs about adversity at Time 1 predicted better psychological well-being ($r = 0.20$, $p < 0.01$ for the MH factor) and reduction of adolescent problem behavior ($r = -0.20$, $p < 0.01$ for the PB factor) at Time 2. Prospective correlations were also computed to examine the link between adolescent adjustment at Time 1 and changes in endorsement of Chinese cultural beliefs about adversity at Time 2. The findings in Table II show that none of the related partial correlation coefficients were significant.

TABLE III
 Multiple regression analyses on the mutual influences between beliefs about adversity and adolescent adjustment with the effect of the initial Time 1 level of the criterion variable removed

Time 2 Adjustment	Time 1 CBA Scores	Beta	Total adjusted R^2 and change in R^2	F-change
EXIST ($n = 188$)	0.19**	Total = 0.30	Change = 0.03	7.87**
LIFE ($n = 189$)	0.19**	Total = 0.29	Change = 0.03	8.13**
MAS ($n = 188$)	0.17*	Total = 0.27	Change = 0.03	6.45*
ESTEEM ($n = 189$)	0.11 ^a	Total = 0.28	Change = 0.01	3.01 ^a
GHQ ($n = 189$)	-0.21**	Total = 0.20	Change = 0.04	9.52**
DRUG ($n = 189$)	-0.14*	Total = 0.46	Change = 0.02	6.79*
DELIN ($n = 189$)	-0.12*	Total = 0.35	Change = 0.01	3.97*
MH ($n = 187$)	0.16*	Total = 0.40	Change = 0.02	6.57*
PB ($n = 187$)	-0.15**	Total = 0.49	Change = 0.02	8.02**
Time 1 Adjustment	Time 2 CBA Scores			
EXIST ($n = 188$)	0.11 ns	Total = 0.29	Change = 0.010	2.65 ns
LIFE ($n = 189$)	0.02 ns	Total = 0.29	Change = 0.000	0.06 ns
MAS ($n = 188$)	0.02 ns	Total = 0.29	Change = 0.000	0.06 ns
ESTEEM ($n = 189$)	0.02 ns	Total = 0.29	Change = 0.000	0.13 ns
GHQ ($n = 189$)	0.01 ns	Total = 0.29	Change = 0.000	0.02 ns

TABLE III
(Continued)

Time 1 Adjustment	Time 2 CBA Scores	Beta	Total adjusted R^2 and change in R^2	F-change
DRUG ($n = 189$)		0.06 ns	Total = 0.29 Change = 0.004	1.05 ns
DELIN ($n = 189$)		0.06 ns	Total = 0.29 Change = 0.003	0.94 ns
MH ($n = 187$)		0.05 ns	Total = 0.29 Change = 0.003	0.68 ns
PB ($n = 187$)		0.08 ns	Total = 0.29 Change = 0.006	1.56 ns

Notes: * $p < 0.05$, ** $p < 0.01$, ^a $p < 0.10$, ns = non-significant

CBA = Chinese Beliefs about Adversity Scale

EXIST = Existential Well-Being Scale

LIFE = Life Satisfaction Scale

MAS = Mastery Scale

ESTEEM = Self-Esteem Scale

GHQ = General Health Questionnaire

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DELIN = Delinquent behavior

MH = Mental health factor

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Multiple regression analyses

To examine the causal relationships between endorsement of Chinese cultural beliefs and adolescent psychological adjustment over time, multiple regression analyses were performed with missing values handled by the listwise deletion method. For each equation, Time 2 adjustment scores were treated as the dependent variable and the corresponding Time 1 scores and gender were entered in step 1 and Time 1 CBA scores were entered in step 2. Results showed that a higher level of CBA scores at Time 1 predicted positive changes in the adolescent developmental outcomes (except self-esteem). Similar analyses were carried out to examine the influence of Time 1 adolescent adjustment on the change in CBA scores over time by controlling the Time 1 CBA scores. Results showed that none of the related equations were significant (see Table III).

DISCUSSION

The primary aim of this paper was to report findings on the relation between endorsement of Chinese cultural beliefs about adversity and adolescent psychological well-being and problem behavior in Hong Kong Chinese adolescents. There are several unique features of this study. First, Chinese adolescents experiencing economic disadvantage were recruited. Second, multiple measures of adolescent adjustment, including measures of psychiatric morbidity, positive mental health (existential well-being, life satisfaction, self-esteem and mastery) and problem behavior (substance abuse and delinquency) were used. Third, to examine the causal links between endorsement of Chinese cultural beliefs about adversity and adolescent psychological adjustment in a more rigorous manner, a longitudinal design was adopted. Finally, the possibility that identification with Chinese cultural beliefs about adversity predicts adolescent psychological adjustment *and* the possibility that adolescent adjustment predicts endorsement of Chinese cultural beliefs about adversity were examined.

It was expected that adolescents with stronger endorsement of positive Chinese cultural beliefs about adversity (or weaker endorsement of negative Chinese cultural beliefs about adversity) would have better adjustment. While the findings presented in Table I generally show that agreement with Chinese cultural beliefs about adversity was concurrently and longitudinally related to adolescent adjustment, partial correlation and multiple regression analyses clearly revealed that there was no bi-directional influences between these two domains. Although a higher level of agreement with Chinese cultural beliefs about adversity at Time 1 predicted better psychological well-being and less problem behavior at Time 2, mental health at Time 1 did not appear to have any effect on the changes in CBA scores at Time 2.

The observation that endorsement of Chinese cultural beliefs about adversity is related to adolescent adjustment over time is consistent with the assertions of the Multicultural Model of the Stress Process (Slavin et al., 1991) that culture plays an important role in defining the problem and behavioral options in the stress and coping processes and Kagawa-Singer and Chung's (1994) model on how cultural beliefs are related to individual mental health. The present findings are also consistent with research findings suggesting that there is an intimate relationship between cultural beliefs and health outcomes: Bains (2001) suggested that cultural beliefs and values are intimately related to mental health and help-seeking of young people from ethnic minority backgrounds; Leung (1996) found that beliefs about externality of control and lower efficacy were related to poor psychological adjustment in Chinese people.

The present paper highlights the role of traditional Chinese cultural beliefs about adversity in the adjustment of adolescents. According to Pepitone (1994), beliefs can reduce emotional pain or stress associated with negative emotions, provide a cognitive structure that gives a sense of control over life, create moral order and certainty, and enhance group solidarity. It would be theoretically important to examine how traditional Chinese cultural beliefs are related to such functions that might eventually contribute to adolescent adjustment. In particular, the relationship between beliefs and other psychological

constructs, such as optimism (e.g., Affleck et al., 2001), should be further explored in the future. Because there have been to date few studies examining the role of identification with cultural beliefs about adversity in the development of resilience (Smith and Carlson, 1997; Hauser, 1999), the present findings can be regarded as pioneering in nature.

Practically, the present findings suggest that cultural beliefs about adversity can be utilized by helping professionals in the intervention process. Cognitive therapists may make use of cultural beliefs to change the beliefs and thinking of the clients. For example, in an attempt to help a client to maintain positive thinking in the midst of adversity, a therapist may encourage the client to make use of positive cultural beliefs about adversity and help the client to debate against the negative cultural beliefs about adversity. Actually, this suggestion is consistent with similar views in the literature: Shiang et al. (1998) explicitly argued that "the incorporation of specific cultural beliefs and behaviors into standard clinical treatments is sorely needed to improve our ability to provide services to people from diverse settings" (p. 182); McLeod and Machin (1998) also argued for the importance of emphasizing the cultural dimension of counseling and respecting the clients' own cultural experience, lifestyle and language.

There are several limitations of the present study. First, because there is a wide variation in the sub-cultural ingredients in different ethnic groups within China, there is a need to replicate the present findings in different Chinese settings. Second, because measures of traditional Chinese cultural beliefs about adversity and adolescent adjustment were self-report measures, it is possible that the relationship between the two domains may be due to common method variance. Therefore, it would be methodologically superior if multiple methods and multiple sources of data can be employed. Third, because there are only two time periods in this study, the data cannot give any clue to the relationships between identification with traditional Chinese cultural beliefs about adversity and adolescent adjustment in the long run. It would certainly be exciting if more time points over a longer period of time can be used.

Despite these limitations, the present findings are stimulating, particularly with reference to our understanding of the linkage between endorsement of traditional Chinese cultural beliefs about adversity and adjustment in Chinese adolescents experiencing economic disadvantage in Hong Kong. The present study can be regarded as a constructive response to Orthner's (1996) criticism that research in poverty "has not been accorded the level of research attention as families in middle class" (p. 589) and Luthar's (1997) comment that "there is a need for greater attention to theoretical conceptualizations regarding 'normative development' in the context of poverty" (p. 579).

ACKNOWLEDGEMENTS

This work was financially supported by the Research Grants Council of the Hong Kong Special Administrative Region (Grant CUHK4087/99H) and Wofoo Foundation. Address all correspondence to Daniel T.L. Shek, Social Welfare Practice and Research Centre, Department of Social Work, The Chinese University of Hong Kong, Shatin, Hong Kong.

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THE QUALITY OF LIFE OF HONG KONG'S POOR HOUSEHOLDS IN THE 1990s: LEVELS OF EXPENDITURE, INCOME SECURITY AND POVERTY

(Accepted 3 April 2004)

ABSTRACT. This paper examines the changes in the quality of life of poor households in Hong Kong in the late 1990s by analyzing their levels of expenditure, income security and poverty before and after 1997. Though there have been significant increases in the levels of expenditure among CSSA recipients, the expenditure among these poorest households in Hong Kong is still below that of non-CSSA recipients. Increasing poverty in Hong Kong is the result of increasing housing costs borne by these low expenditure households, who have to squeeze their expenditure on food and other items in order to meet the rising cost of housing. De-industrialisation and mass unemployment have given capital and the state unchecked authority to restructure the economy and to deregulate the labour market. Many low-income households have been hit hard as they faced redundancy, unemployment and wage-cuts after the 1997 Asian financial crisis. What jobs have been created are mostly part-time, temporary and contract jobs, and there has thus been an erosion in both job and income security. The quality of life of poor households is devastating not only in the sense that their living standards are low, but also that they are socially excluded from the mainstream of society.

KEY WORDS: economic well-being, Hong Kong, poor households, quality of life

INTRODUCTION

Hong Kong being one of the most modernized cities in Asia, one would think that it should be free of the problem of poverty. In reality, behind the image of prosperity, Hong Kong's income distribution is extremely unequal with many people still living at subsistence level and many in abject poverty. Using different definitions and measurements of poverty, various

researchers estimate that about six hundred thousand people, that is 10–15% of the population were living in poverty during the period 1994–1996 (Wong and Chua 1996; MacPherson and Lo 1997; Mok and Leung 1997). What was the quality of life of these poor households in the 1990s? Were there significant changes in the quality of life of these poor households after 1997, the year of Hong Kong's political reunification with Mainland China and of the outbreak of the Asian financial crisis?

Quality of life (QOL) is a complex, abstract, and multidimensional concept, which is difficult to define and measure. Many academics and government institutions have proposed various indices to monitor the change of QOL in different countries and regions (Hagerty et al., 2001). Working with Richard J. Estes, the Hong Kong Council of Social Service developed the Social Development Index (SDI-2002), which is the most comprehensive QOL index in Hong Kong (HKCSS, 2002). The Index includes a Low Income sub-index, which comprises 'the number of low-income households,' 'the percentage of household expenditure on housing and food,' 'the unemployment rate,' 'the real wage index' and 'the ratio of homeless persons.'

The Low Income sub-index of SDI-2002 provides a useful and reliable way to measure the QOL of poor households in Hong Kong. However, the scope of the sub-index is limited by the availability of primary data collected by the government. For example, data on the percentage of expenditure on food and housing are compiled by the Household Expenditure Survey, which only takes place once every five years. Another limitation of the Low Income sub-index of SDI-2002 is that, for the sake of simplicity, it includes only a very limited number of indicators. For instance, it does not include measures of the consumption levels of the poor households, nor does it have any indicators of income, work and employment insecurity among the poor.

In order to fill in these gaps, this paper will analyze the changes in the quality of life of poor households in Hong Kong in the late 1990s by including a number of additional dimen-

sions. I will also seek to highlight the context and reasons behind the changes. I will not compile another QOL index, but rather identify and explain the major changes of QOL among Hong Kong's poor households in the late 1990s by primary and secondary data analysis.

According to the opinion polls conducted by the Home Affairs Bureau, Hong Kong SAR, the general public has continued to be most concerned about the economy and labour problems since 1998, following the Asian Financial Crisis. The economic problems that have concerned them are the economic recession, the level of employment and the issues which unemployment gives rise to. Labour problems include the difficulties faced by jobseekers, laid off workers and those affected by underemployment. Clearly, economic well-being has been the main concern of the general public in Hong Kong. The poor households, the most economically vulnerable section of the population in times of economic crisis, were badly hit by unemployment and wage cuts during the recession. They worry about the current conditions in the economy and in the labour market. In this paper, I will focus on the major changes in their economic well-being, the main determinant of their overall quality of life.

The Index of Economic Well-Being (IEWB) was developed by Lars Osberg and Andrew Sharpe in order to measure economic well-being in the USA (Osberg and Sharpe, 1998, 1999, 2000). They identify four dimensions of economic well-being: (1) the level of average consumption flows; (2) aggregate accumulation of productive stocks; (3) inequality in the distribution of individual incomes and (4) insecurity in the anticipation of future incomes. My analysis of economic well-being will follow Osberg and Sharpe's conceptualization. However, as data on levels of saving and investment among poor households can hardly be founded in Hong Kong, I will not discuss aggregate accumulation of productive stocks in this paper. I will focus my investigation on examining the change in the level of consumption, inequality of incomes and deterioration of work security among the poor households in the late 1990s; I will also explore the dynamics of the reasons behind such

changes as they determine the economic well-being as well as the quality of life of the poor households.

CHANGE IN LEVEL OF CONSUMPTION

CSSA Recipients

The means-tested Comprehensive Social Security Assistance (CSSA) Scheme is the major income-support social security scheme in Hong Kong, which is intended to provide assistance to financially vulnerable individuals and families. CSSA recipients represent the most vulnerable population in Hong Kong. In 1989/1990, there were just 64,222 households receiving CSSA. In 1999/2000, owing to the economic recession after the 1997 Asian Financial Crisis, there were 228,015 households receiving CSSA.

According to the household expenditure survey of CSSA recipients conducted by the Social Welfare Department, the total expenditure level of the CSSA recipients recorded a significant increase during the 1990s (SWD, 1996; 2001). In Table I, the expenditure level of the CSSA recipients in 1989/1990 and 1994/1995 were adjusted according to the Social Security Assistance Index of Prices (SSAIP) and converted to the same purchasing power as at Oct 1999–Sep. 2000. The average total monthly per capita expenditure of CSSA recipients was \$1886¹ in 1989/1990, which increased to \$2072 in 1994/1995, representing a 9.9% increase over 5 years in the early 1990s. It further increased to \$2769 in 1999/2000, a further 33.6% increase over 5 years in late 1990s. The escalating level of total consumption among CSSA recipients seems to reflect a positive increase in their economic well-being and their quality of life. However, under scrutiny, this increase may not be as enormous as it first appears.

During the period from 1989/1990 to 1999/2000, the total increase of per capita expenditure of CSSA recipients was \$883. This included widely varying increases in the expenditure on different categories of commodities/services. The most significant increase was in expenditure on housing. Housing expen-

TABLE I
Average Monthly Per Capita Expenditure of CSSA recipients (1989/1990, 1994/1995 and 1999/2000)

Category of Commodity/Services	1989/1990		1994/1995		1999/2000		Difference between 1989/1990-1999/2000 HKD(\$)	Percentage to Overall Difference (%)
	HKD(\$)	(%)	HKD(\$)	(%)	HKD(\$)	(%)		
Food	1071	56.8	984	47.5	1084	39.1	+13	1.4
Housing	290	15.4	478	23.1	603	21.8	+313	35.4
Fuel & Light	75	4.0	107	5.1	131	4.7	+56	6.3
Alcoholic Drinks & Tobacco	60	3.2	50	2.4	60	2.2	+0	0.0
Clothing & Footwear	55	2.9	55	2.7	110	4.0	+55	6.2
Durable Goods	20	1.1	30	1.5	79	2.9	+59	6.7
Miscellaneous Goods	129	6.8	102	4.9	240	8.7	+111	12.6
Transport	49	2.6	59	2.9	119	4.3	+70	8.0
Miscellaneous Services	134	7.1	200	9.6	343	12.4	+209	23.7
Overall (average monthly exp.)	1886	100.0	2072	100.0	2769	100.0	+883	100.0

Note: The prices are adjusted according to the Social Security Assistance Index of Prices (SSAIP) and converted to the price levels at Oct. 1999-Sep. 2000.

Source: Research and Statistics Section Social Welfare Department (1996 and 2001).

diture increased by \$313, or 35.3% of the total increase. The percentage of housing expenditure to total expenditure also rose from 15.4% in 1989/2000 to 21.8% in 1999/2000. Though the expenditure on housing was increasing, it does not necessarily follow that the quality of housing was improving for CSSA recipients. Rather, it was a result of the escalating cost of housing. I will discuss the impact of rising housing costs on poor households in Hong Kong in detail in the next section.

The second major component in the increase in CSSA recipients' expenditure was on miscellaneous services, which increased by \$209, 23.7% of the total increase. The increase in expenditure on miscellaneous goods was \$111, 12.6% of the total difference, which ranked third. Increasing expenditure on housing, miscellaneous services and miscellaneous goods constituted 71.7% of the total increase in the per-capita expenditure of CSSA recipients during the 10 years in question.

In order to investigate the impact of rising expenditure on miscellaneous goods and services on the quality of life of CSSA recipients, we need to examine what kinds of miscellaneous goods and services they consumed. In 1999/2000, of the \$343 per capita spent on miscellaneous services, \$70 (57.8%) was spent on medical services, \$121 (35.3%) on education related expenses, and \$71 (20.7%) on telephone services. Of the \$111 per capita spend on miscellaneous goods, \$59 (53.1%) was spent on proprietary medicines and supplies, and \$52 (46.9%) on books and periodicals (see Tables II and III).

The increase in the expenditure on education related books and periodicals signifies the rising cost of education as well as the rising expectation among CSSA recipients that their children will complete elementary or even tertiary education. Though CSSA recipients can receive free medical services at Government clinics and hospitals, many recipients, especially the elderly, like to consult traditional Chinese doctors, and this is not included in the special needs allowance. Further, though public health services are free for CSSA recipients, clinics have limited quotas and patients might need to wait for three to four hours to get an appointment. For minor illnesses, many recipients prefer to buy proprietary western and Chinese med-

TABLE II
Comparison of Average Monthly Per Capita Expenditure of CSSA Recipients and other Households on Miscellaneous Goods (1999/2000)

	CSSA recipients		Non CSSA recipients	
	\$	%	\$	%
Miscellaneous service				
Educational related expenses	121	35	247	25
Telephone services	71	21	201	21
Medical services	70	21	141	15
Household services	20	6	153	16
Other	59	17	231	24
Sub-total	343	100.0	973	100.0
All categories	2769		6411	
Percentage to all categories		12.4		15.2

Source: Research and Statistics Section Social Welfare Department (2001: 13) and Census and Statistical Department (2001a: 91-92).

TABLE III
Comparison of Average Monthly Per Capita Expenditure of CSSA Recipients and other Households on Miscellaneous Goods (1999/2000)

	CSSA recipients		Non CSSA recipients	
	\$	%	\$	%
Miscellaneous Goods				
Proprietary Medicines and Supplies	59	25	31	10
Books and Periodicals	52	22	59	19
Cosmetics and Personal Care Products	39	16	57	19
Newspapers	27	11	32	10
Housing Cleansing Tools and Supplies	15	6	11	3
Stationery	11	5	10	3
Others (included soft furnishings, jewellery, toys and hobbies, household, others)	38	16	111	36
Total	240	100	310	100

Source: Research and Statistics Section Social Welfare Department (2001: 13) and Census and Statistical Department (2001a: 90).

icines for self-treatment rather than waiting in a long queue at the public health clinic.

The CSSA recipients spend more on miscellaneous goods and services, which represents an absolute increase in their quality of life. On the other hand, when we compare them with the general households in Hong Kong, their quality of life still lags behind other households in Hong Kong.

In 1999/2000, the average monthly per-capita expenditure of a CSSA recipient was \$2769, and that of a non-CSSA recipient was \$6411 (see Table IV). The difference reflects the significant disparity of living standards between the CSSA recipients and the general public. The total expenditure level of CSSA recipients, a measure of their total consumption, was only 43.2% of the level of non-CSSA recipients. CSSA recipients consume less of every category of goods and services than their non-CSSA counterparts. Nevertheless, a larger share of CSSA recipients' expenditure (39.1%) is on food, while non-CSSA recipients

TABLE IV

Comparison of Average Monthly Per Capita Expenditure of CSSA and Non-CSSA Recipients by section of commodity/services (1999/2000)

Category of commodity/ services	CSSA Recipients		Non-CSSA Recipients	
	HKD(\$)	(%)	HKD(\$)	(%)
Food	1084	39.1	1651	25.7
Housing	603	21.8	2061	32.2
Fuel & Light	131	4.7	186	2.9
Alcoholic drinks & tobacco	60	2.2	66	1.0
Clothing & footwear	110	4.0	282	4.4
Durable goods	79	2.9	291	4.5
Miscellaneous goods	240	8.7	310	4.8
Transport	119	4.3	591	9.2
Miscellaneous services	343	12.4	974	15.2
Overall (average monthly exp.)	2769	100.0	6411	100.0

Source: Research and Statistics Section, Social Welfare Department (2001:8) and Census and Statistical Department (2001a: 87-92).

spend only 25.7% of their budget on food. The higher Engel Ratio of the CSSA recipients signifies their level of poverty.

The increase in expenditure on miscellaneous goods and services among CSSA recipients from 1989/1990 to 1999/2000 reflect greater choice and variety in their consumption patterns, and thus represents an improvement in their quality of life. Nonetheless, both the quantity and quality of the consumption among CSSA recipients on these two items were still well below those of non-CSSA recipients.

In 1999/2000, while CSSA recipients spent \$343 on miscellaneous services, non-CSSA recipients spent 2.8 time that amount, \$973, on the same. A larger share of CSSA recipients' spending on miscellaneous services was on education related services (35%) and medical services (25%) than non-CSSA recipients. However, in absolute terms, the CSSA recipients spent \$121 on education and related services and \$70 on medical services, only half of the \$247 and \$141 spent by the non-CSSA recipients. As indicated above, CSSA recipients spend more on education related services than they did in the past. Compared with the general public, CSSA recipients spent much less on education related expenses, and this may hamper their opportunities to escape from poverty.

There was also a significant difference between CSSA and non-CSSA recipients in the 'Others' category of miscellaneous services. The survey report on non-CSSA recipients gave a break down of this item, but it cannot be found in the report on CSSA recipients. However, it is clear from the composition of these 'Others' among non-CSSA recipients, who spent \$231 on them, that they were the kinds of items which have an influential positive effect on quality of life. Monthly spending under the various headings included package tours (\$81), professional services, photo-printing, subscriptions and other services (\$65), other entertainment and holiday expenses (\$32), spending on dinner parties (\$12) and cinema entertainment (\$9), hair-dressing (\$24). The CSSA recipients spent a total of \$59 on all these items, just one-fourth of the non-CSSA recipients. This signifies that the CSSA recipients enjoyed only a minimal social life compared with the general public.

Under miscellaneous goods, there is also a significant qualitative variation between CSSA recipients and non-recipients. CSSA recipients spent \$59 (25%) on proprietary medicines and supplies, much higher than the \$31 (10%) spent by non-CSSA recipients, indicating that CSSA recipients relied more on proprietary medicines since they could not afford private health care. While the non-CSSA recipients spent \$111 (36% of their expenditure on miscellaneous goods) on 'other goods' (included soft furnishings, jewellery, toys and hobbies), the CSSA recipients spent only \$38 (16%) on this item, which also reflects their relative deprivation.

All in all, total expenditure levels among CSSA recipients recorded a significant increase during the 1990s, indicating a real increase in their consumption levels and economic well being after the rise in the basic rate in the mid-1990s. However, when we compare their level and patterns of expenditure with those of non-CSSA recipients, CSSA recipients spent a larger proportion of their expenses on the necessities like education related services, medical services and proprietary medicines.

CSSA recipients spend less than the general public, both absolutely and relatively, on housing, toys and hobbies, tours, and entertainment. In the contemporary urban context, these goods and services have a significant impact on their quality of life. To conclude, the economic well-being of the CSSA recipients increased absolutely when we compare their present with their past living standards; but decreased relatively when we compare their living standards with those of other households in Hong Kong.

According to the report of the Household Expenditure Survey in 1994/1995 and 1999/2000, the average monthly expenditure of the lowest 25% expenditure group (non-CSSA recipients) increased from \$6107 to \$8026 (see Table V). The overall expenditure of the lowest 25% expenditure group increased \$1919 (31.4%) in real term from 1994/1995 to 1999/2000. However, 43.1% of their increased expenditure was on housing and 18.6% was on miscellaneous services. The increases in expenditure in other sectors were well below these two items. These figures suggest that though the over expen-

TABLE V
Difference of Average Monthly Household Expenditure of the Lowest 25% Expenditure Group in 1994/1995 and 1999/2000

Category of commodity/services	Monthly expenditure		Difference between 1994/1995 and 1999/2000 HKD(\$)	Percentage to total difference
	1994/1995 HKD(\$)	1999/2000 HKD(\$)		
Food	2941	2917	(24)	-1.2%
Housing	1449	2275	826	43.1%
Fuel & Light	274	402	128	6.7%
Alcoholic Drinks & Tobacco	148	150	2	0.1%
Clothing & Footwear	261	211	(50)	-2.6%
Durable Goods	111	226	115	6.0%
Miscellaneous Goods	255	397	142	7.4%
Transport	431	598	167	8.7%
Miscellaneous Services	495	851	356	18.6%
Overall (average monthly expenditure)	6107	8026	1919	100.0%
No. of Households	379,000	406,000		

Note: The expenditure levels in 94/95 are adjusted at 1999/2000 prices according to the changes in the CPI(A).
Source: Census and Statistical Department (1996, 2001a).

diture level of the poor non-CSSA recipients increased significantly in the late 1990s, most of the increased expenditure was on housing. The increase in housing expenditure may have been caused by escalating housing prices. One result may have been that the overall quality of life of poor households in the late 1990s did not significantly advance at all. The rising cost of housing and its impact on poor households will be discussed in the next session.

The rising cost of housing and its share in household expenditure

Rising housing costs in the 1990s were the most important factor in the growing cost of living in Hong Kong. Liu (1998) suggests that strong demand and restricted supply of land pushed property prices to an unrealistic level. The residential property price index increased sevenfold in the 10 years before the market crashed in late 1997. Residential property prices in Hong Kong overtook Tokyo and all major cities to become the highest in the world. Rising property prices inevitably pushed up the rental cost of accommodation.

During the late 1980s and the early 1990s, the housing expenditure pattern of Hong Kong households underwent an important change. Families came to spend more of their budget on housing than on food. Referring to Table VI, the share of housing in total household expenditure increased more than 5% from 20.1% in 1979/1980 to 25.6% in 1989/1990. The increasing trend continued in the early 1990s, with a further 5% of the total expenditure spent on housing, which increased to 31.0% in 1994/1995. Concomitantly, the share of expenditure on food in the total household expenditure decreased from 38.3% in 1984/1985 to 29.4% in 1994/1995. As regards other items, except for transportation their shares in total household expenditure have been stable since 1979/1980. In 1994/1995, housing surpassed food to become the largest single item of household expenditure. In 1999/2000, the share of housing in total household expenditure increased to 32.2%, which exceeded the share of food by 6.5%, signifying that housing had become the most important item of expenditure in the household budget.

TABLE VI
 Percentage of Selected Items of Total Household Expenditure (1979/1980–1994/1995)

Percentage of selected items of total household expenditure	1979/1980	1984/1985	1989/1990	1994/1995	1999/2000
Housing	20.1	20.6	25.6	31.0	32.2
Food	38.3	38.3	34.2	29.4	25.7
Medical and Supplies and Medical Services	2.8	3.0	2.4	2.2	2.7
Fuel and Light	2.8	2.8	2.4	2.4	2.9
Transport	6.4	7.2	7.6	7.9	9.2

Source: Census and Statistics Department, Household Expenditure Survey, various issues.

Owing to the expanding share of housing in total household expenditure, the rise and fall of housing costs is the most important factor in changes in the cost of living. In 1999, the change in housing prices contributed 40.6% to the rate of change in the Composite Consumer Price Index (Census and Statistics Department, 2000: 38). In 1999/2000, the lowest 25% of households spent 28.3% of their total expenditure on housing, while in 1994/1995 they only spent 23.7% of their total budget on housing. (Census and Statistics Department, 1996, 2001a).

Wong and Lee (2001) find that the income elasticity of expenditure on housing is lower than food in Hong Kong. When the poor households were asked “If their income were cut in half, which item of expenditure would they spend less on?”, 62.6% of the poor households answered that they would reduce their expenditure on food, while only 9.6% would reduce their expenditure on housing. When the poor households were asked “if their income were doubled, which item would they spend more on?”, among the poor households, 53.2% would increase their expenditure on food, and 29.0% would increase their expenditure on housing. For the poor households, housing is a more essential ‘necessity’ than food. I will explain this phenomenon in the next session.

In conclusion, households in Hong Kong have had to put a greater share of their expenditure into meeting the dramatically rising prices of real estate and rent. The changing pattern of expenditure shows that households in Hong Kong spent most of their increasing income to finance the cost of housing. After meeting the mounting housing costs, most Hong Kong families, especially those living in abject poverty, did not have extra financial resources to improve their quality of life.

Impact of rising housing costs on different types of households

After conducting a secondary data analysis on the Households Expenditure Survey 1994/1995 (Census and Statistics Department, 1996), Wong and Chua (1996) find that the lowest 0–5% expenditure group spent 44% of their total expenditure on housing, while the lowest 5–10% expenditure group spent 37% on housing (see Table VII). The ratio then decreased to the 26–28% level for the 10–40% expenditure group. For the 40–50% expenditure group the ratio increased to 31% while for the 50–100% highest expenditure group, the ratio significantly increased to 46%. The U-shape of this curve shows that, on the one hand, the poorest people had to spend about 40% of their expenditure to rent a bedsit or a tiny board-partition-room, and on the other hand, the middle class used up nearly half of their expenditure (46%) on their home mortgage. This demonstrates that high housing costs have increased the cost of living for both the poorest and the richest sectors in Hong Kong.

Having compared the changes in the expenditure patterns of the expenditure households in the 1990s, Wong and Chua (1996) conclude that increasing poverty in Hong Kong is the result of increasing housing costs borne by the low expenditure households, who have to squeeze their expenditure on food and other items in order to meet the housing costs. The data in Table VIII reveal that the growth rate of food expenditure for one-person households in the lowest 5% expenditure group from 1989/1990 to 1994/1995 was 41%, which was lower than the growth rate of inflation (57%) during the same 5 years. However, the growth rate of housing expenditure for these households was 122%, double the inflation rate in the same

TABLE VII
Expenditure of Different Expenditure Groups of One-person Households on Food, Housing and other Expenditure (1994/1995)

Expenditure group	0-5%	5-10%	10-15%	15-20%	20-30%	30-40%	40-50%	50-100%
Food (\$)	525	869	1201	1297	1594	1780	1935	3113
of total expenditure	44	46	52	49	47	43	36	19
Housing (\$)	483	689	619	749	872	1082	1656	7294
of total expenditure	40	37	27	28	26	26	31	46
Other expenditure (\$)	191	327	469	589	916	1,252	1774	5574
of total expenditure	16	17	20	22	27	30	33	35

Source: Wong and Chua (1996: 11).

TABLE VIII

Change in Food and Housing Expenditure of One-person Households in the Lowest 5% Expenditure Group (1989/1990–1994/1995)

One-person household 0–5% expenditure group	1989/1990 (HKD)	1994/1995 (HKD)	Growth Rate (%)
Food Expenditure	\$373	\$525	40.8%
Housing Expenditure	\$217	\$483	122.6%
		1989/1990–1994/ 1995 inflation rate	57%

Source: Wong and Chua (1996: 24).

period. This signifies that due to the bubble economy in the late 1980s, rising property price induced higher rental costs, which increased the burden on low-income households (see Table VIII).

The rise of housing costs had a greater impact on small households and those living in private housing. These households spent a larger proportion of their total income on housing. Unlike households with several members, a larger proportion of single person households lived in private housing. This is because the public housing agencies used to neglect the needs of single-person and two-person households. Although single-person households could apply for public rental housing, the waiting period was so long that most of them were forced to seek accommodation in the private sector.

In 1994/1995, the lowest 5% expenditure group of single-person households spent \$483 on housing. During that period, the average rent of a caged-home or a bedsit was \$450 to \$500. Caged-homes and bedsits were the cheapest means of accommodation in the private housing market, so the lowest rent for the poorest single-person households was around 500 dollars. This meant that these people had to use up 40% of their expenditure on housing, with the result that their expenditure on other items was squeezed.

The low-income households in the private housing sector spend more on housing than their counterparts living in public housing. In 1994/1995, among the one-person households in the

lowest 10% expenditure group, those living in private housing spent 48% of their total expenditure on housing, while those living in public housing only spent 34% on housing. However, those who lived in public housing still faced the pressure of high rent. The guideline for fixing rent adopted by the Housing Authority is that the standard rent should not exceed 15% of the median income of the potential tenants. Yet the one-person households in the lowest 10% expenditure group in public housing spent \$519 on housing, about 31% of their total income, double the standard rate set by the Housing Authority.

Though the rising trend of the property price and housing rent was reversed after the bubble economy burst in the 1997. The poor households still spend more proportion of their household expenditure on housing between the period 1994/1995 and 1999/2000. The 0–5% and 5–10% expenditure groups increased 1% of their total expenditure on housing, while the 10–15% expenditure group significantly increased 5% of their household expenditure on housing. Concomitantly, the 0–5%, 5–10%, and 10–15% expenditure group decreased percentage of food expenditure by 3%, 6% and 9%. This signifies low-expenditure households must squeeze their expenditure on food in order to pay for housing even in the late 1990s.

The low elasticity of housing expenditure of the low-expenditure households is caused by the formalisation of the housing market in Hong Kong. Before the 1980s, most poor households in Hong Kong applied for public housing to fulfil their housing need. While they were waiting for public rental housing, they had to rent bed sits or rooms in the private housing market. When they found the rent in the private housing market unbearable, the poor households could fulfil their housing need by having recourse to different forms of accommodation in the informal economy: buying squatters or rooftop flats, or using self-help strategies to build their own squatters or boathouses.

The private housing market in Hong Kong, however, became more 'formalized' after the government tried to regulate and demolish the squatters, rooftop houses and caged-homes. Consequently, the choices of the poor households became more and more restricted. The only outlet for those

who cannot find accommodation in public housing, mainly single person households and new arrivals, is to live in bed sits or board-partition-rooms in the old urban areas. Worse still, in view of the redevelopment of the old urban areas, these poor households cannot find enough caged-homes and board-partition-rooms. The elasticity of housing expenditure of such poor households is extremely low. Therefore, if they cannot afford the rent for this lowest level accommodation, they will become homeless. In short, the increasing cost of housing is the most important factor in both the rise in living costs and the exacerbation of the problem of poverty in Hong Kong.

Income Security in the 1990s

Growth of income inequality and poverty

Using different definitions and measurements of poverty, various researchers come to the same conclusion: that the problem of poverty was severe in the 1990s in Hong Kong. They estimate that about six hundred thousand people, that is 10–15% of the population, were living in poverty during the period 1994–1996 (Wong and Chua, 1996; MacPherson and Lo, 1997; Mok and Leung, 1997).

The gap between the rich and the poor was widening throughout the 1990s. According to the data of the 2001 Census, the Gini Coefficient reached its highest recorded level, 0.525, at that time (Hong Kong Census and Statistics Department, 2001b). In 1971 the Gini Coefficient was only 0.43. However, in the 1980s the economic restructuring process induced a growing discrepancy in income; the Gini Coefficient was increasing, and reached 0.451 in 1981, rising further to 0.476 in 1991. In the early 1990s the process of economic restructuring accelerated, with a concomitant widening of the gap between the rich and the poor.

From 1981 to 2001, households with the lowest income showed no sign of improvement, but there are signs of a decrease in the share of income of the low-income households. In fact, 20% of the households with the lowest income earned only 4.6% of total household income in 1981. The figure

increased slightly in 1986 to 5.0%, but in the period from 1986 to 1991, the figure fell to 4.3%. During the period 1991–1996 the ratio decreased sharply to 3.7%, and from 1996 to 2001 the ratio decreased further to 3.2%. We can see that the income gap widened in the 1980s, and the situation of low-income households has worsened significantly in the 1990s (see Table X).

The impact of the asian financial crisis

In the late 1990s, following the Asian financial crisis, Hong Kong's bubble economy burst. As lots of employees faced unemployment and wage cuts, the income security of the poorest employees, mainly unskilled manual workers of low educational background, has severely worsened. In 1990 the average income of the first quintile income households was \$3450, while in 1997 the average real income of this group slightly increased to \$3668. However, after the Asian financial crisis, the average income of this lowest quintile group decreased to \$2645 for the first nine months of 1999. In other words, from 1990 to 1999 the real income of the poorest one-fifth households in Hong Kong decreased 23.3%.

Conversely, the income of the wealthiest stratum in Hong Kong recorded a significant increase. In 1990 the average

TABLE IX

The Percentage of Food and Housing Expenditure to Total Monthly Household Expenditure (1994/1995 and 1999/2000)

Percentage of food and housing expenditure to total monthly household expenditure		Expenditure Group				
		0–5%	5–10%	10–15%	15–20%	Overall
Food	94/95	45%	48%	47%	45%	29.4%
	99/00	42%	42%	38%	38%	25.7%
	Difference	–3%	–6%	–9%	–7%	–3.7%
Housing	94/95	22%	19%	17%	19%	31.0%
	99/00	23%	20%	22%	22%	32.2%
	Difference	+1%	+1%	+5%	+3%	+1.2%

Source: Hong Kong Council of Social Service (2003: 34).

TABLE X
Decile Distribution of Household Income of Domestic Households, 1981–2001

Decile Group	1981	1986	1991	1996	2001
1st (lowest)	1.4	1.6	1.3	1.1	0.9
2nd	3.2	3.4	3.0	2.6	2.3
3rd	4.4	4.4	4.0	3.6	3.4
4th	5.4	5.4	5.0	4.6	4.4
5th	6.5	6.4	6.1	5.7	5.6
6th	7.8	7.6	7.4	7.0	7.0
7th	9.4	9.1	9.0	8.5	8.8
8th	11.5	11.4	11.4	10.6	11.1
9th	15.2	15.2	15.5	14.5	15.3
10th (highest)	35.2	35.5	37.3	41.8	41.2
Total	100.0	100.0	100.0	100.0	100.0
Gini Coefficient	0.451	0.453	0.476	0.518	0.525

Source: Census and Statistics Department (1991, 2001b). Population Census Main Report.

income of the fifth quintile group was \$28,850, whereas in 1997 the average real income of this group increased to \$36,397. After the Asian financial crisis, their income still recorded real growth and increased to \$37,115. The real income of the wealthiest one-fifth of households in Hong Kong increased 26.1% from 1990 to 1999. These figures clearly demonstrate that the impact of the Asian financial crisis fell mainly on the low-income, unskilled employees, while its impact on professional and administrative workers was limited. The above figures also signify that in the early 1990s economic restructuring had adverse effects on the income security of the low-paid and unskilled workers in Hong Kong, and the Asian financial crisis accelerated this process.

Factors Affecting the Income Stability of the Working Class

Restructuring of the economy

De-industrialisation proceeded at a significant and rapid pace in Hong Kong after the early 1980s. Employment in the

manufacturing sector as a percentage of total employment decreased from 41.3% in 1981 to 12.3% in 2001. In 1986 the number of workers employed in manufacturing industry was 946,653. It was the largest sector in Hong Kong in terms of workers employed. Owing to the continuous outflow of production capital, manufacturing industries lost some 178,000 jobs from 1981 to 1991. This de-industrialisation process accelerated in the early 1990s, as manufacturing industry lost another 570,000 jobs from 1986 to 1996. In 2001 only 400,952 workers remained in the manufacturing sector.

There was a simultaneous change in the internal employment structure of manufacturing industries. From 1981 to 1991 the number of operatives fell by 43% while non-production staff increased by 11% (Census and Statistics Department, 1993: 119). From 1991 to 2001, the number of operatives fell another 12% (Census and Statistics Department, 2001b). Manual workers in manufacturing industries were adversely affected by the trends of de-industrialisation and white-collarisation.

The relocation of capital was not restricted to manufacturing industry; some of the labour processes in the service industry were also relocated to other countries. For example, the relocation of reception of pager calls to mainland China by various pager companies, and the relocation of document processing to China by different banks, all illustrate the future trend of relocation in the service industry. Labour-intensive processes are particularly likely to be relocated to China.

Displaced manufacturing workers

Many manual workers have been forced to leave manufacturing industry for other sectors. Owing to their poor education, most of them can only switch to low-paid, unskilled and precarious jobs in the service industries. More and more manual workers, especially women, middle-aged and elderly workers, are facing the impact of economic restructuring. These displaced workers, who had earlier worked in manufacturing industries, encounter difficulties in securing jobs because their skills hold little market value.

While displaced manufacturing workers find themselves trapped in low-paid jobs in the service industry, those who remain in manufacturing industries often experience under-employment and receive lower incomes. Manufacturing workers experience a slower increase in wages and a deterioration of living standards. The real wage index of craftsmen and operatives in manufacturing industry changed from 101.1 in 1993 to 96.9 in 1997, a 4.2% decrease (Census and Statistical Department, 1999). In other words, the real income of the manufacturing workers could not catch up with inflation. In 1997 the average daily wage of manufacturing workers was only \$329.

Comparatively speaking, production workers in manufacturing industries who can retain their jobs in the same industry, or who can find low-paid jobs in service industries, are fortunate, although they have much lower incomes. Many laid-off workers can never re-enter the labour market to procure other employment.

The rise of structural unemployment

During the late 1980s and the first half of the 1990s, Hong Kong's unemployment rate stayed below 2%, which was very low compared with other industrialised countries. However, the scenario has deteriorated since 1995. In 1995 the official unemployment rate was over 3% for the first time since 1985. Following the financial crisis in Asia in October 1997 the unemployment rate experienced such a dramatic surge that in early 1999 it reached its historically high level of 6.3%.

Wage polarisation in the service sector

Wage structures in the service sector also experienced polarisation in the 1990s. The wages of managerial and professional workers like managers, accountants, and system analysts, in the service industry increased much faster than among low-skilled elementary workers like cleaners and catering workers. According to the report of the Hang Seng Economic Monthly (July 1996), from 1986 to 1996 the annual growth rate in the average real income of managerial and professional employees

was 5%; however, the growth rate of low-skilled workers was only 1–1.6%. In the same period, the annual growth rate of GDP per capita was 5.1%. This vividly demonstrates that there was wage polarisation in the service industry, as, despite overall economic growth, low-wage service workers faced stagnant wage levels, while their managerial and professional counterparts enjoyed wage increases.

Marginalisation of labour: flexible management strategy

Since the 1980s, labour has been marginalised in Hong Kong and in other developed countries. Marginalisation can be seen as the process of the identification and separation of marginal groups from mainstream society. It is the subordination of labour through its gender, ethnic, and occupational divisions, usually with assistance from the state. Under such divisions of labour, the wage levels, working conditions and job security of marginal workers have deteriorated enormously. The marginalisation of labour increases the authority of capital, which under the label of 'flexible management' cuts back the bargaining power of labour.

De-industrialisation and mass unemployment enabled capital and the state to have unchecked authority to restructure the economy and to deregulate the labour market. No matter what rosy or fashionable terms the management use, the simple fact is that most of the newly created jobs in the developed capitalist countries are part-time, contract,¹ temporary or self-employed jobs. The common characteristic of these marginal jobs is that the jobholders are entitled to minimal job security. Workers are liable to be freely hired-and-fired according to the fluctuating demands of the market. Moreover, most of them do not belong to any union because it is difficult for unions to organise these workers who are employed on a part-time basis, or are on temporary or short term contracts, or work at home. The self-employed and the contractors have lost their entitlement to the protection of labour legislation, because their relationship with their employers has already been transformed from an 'employment relation' to a 'business contractual relation' (Collins, 1990).

Atkinson (1985) describes differences in the labour market in his model of a 'flexible firm'. He makes a distinction between functionally and numerically flexible workers. Functionally flexible workers, according to Atkinson, are those workers who are able to change their skills and tasks in relation to changing market conditions at the core. The different types of numerically flexible workers, by subcontracting, out-sourcing, self-employment, and agency temporaries, are at the periphery their numbers can be adjusted as market conditions fluctuate.

Bosch et al. (1993) identify different forms of flexibility – in working time, wage rates and other contractual terms. In the primary labour market, flexibility is achieved through multi-skilling, working-time flexibility and higher wage rates for overtime and unsocial hours. In the secondary segments of the labour market, flexibility is attained differently through part-time and temporary work, low pay and high insecurity. This distinction thus resolves arguments over whether workers in core or periphery jobs contribute most to overall flexibility (Hakim, 1995).

Flexible management is not a 'new' invention of management, rather it is as old as capitalism itself. Especially when we examine developments from a comparative perspective, we discover that in Hong Kong, along with the other NICs, subcontracting between large and small firms and the use of flexible management (use of over-time, out-worker, seasonal workers) existed in the Territory's industrialisation period in the 1960s and has survived up to now.

'Divide and rule' is another old trick used by management. When they are still building their power, they may divide and segregate the labour market, both internally and externally. While management does not hesitate to use their big stick on marginal workers, they still need to use the carrot to retain co-operation among mainstream workers. However, when management gains enough authority and feels safe enough to use it, they will not just use their stick on 'peripheral' workers. We are now witnessing marginalisation being extended to the so-called 'core' workers. For example, at universities in Hong

Kong, it is not only cleaners who are working mainly as part-time staff under subcontracting agencies. Most newly employed lecturers are also under contract terms and more part-time staff are hired to do the teaching.

Marginalisation is faced not only employees in the private sector, but also by those working in the public sector in Hong Kong. Under the strategy of 'privatisation', numerous public services have been contracted out and are now provided by private companies, for example, car-park management, cleaning and maintenance services in the public housing estates. Since most of these services are out-contracted by the method of competitive tendering, the contractors have to suppress their labour costs in order to bid successfully. The wages, working conditions and welfare of employees of these contract workers are much worse than those of the civil servants who did the same job before. Owing to the uncertainty of tendering, most of the employees of the contractors are part-time and temporary workers. Owing to the marginalisation of labour, their job and income security have greatly deteriorated.

POVERTY

Funded by the Research Grant Council, Wong Hung and Lee Kim Ming conducted a "Study of Hong Kong's Poverty Line" from September 1999 to January 2001. The study successfully interviewed 3086 low-income households to understand their household expenditure patterns and living conditions so that a poverty line can be determined (Wong and Lee, 2001).

The poverty line is determined by the inflection point of the Engel curve through an income proxy measure as Wong and Chua (1996). The Engel curve shows how the ratio of food expenditure to total household expenditure changes as the total household expenditure increases. The inflection point indicates the decreasing marginal propensity to consume food as the household income increases. In other words, the household will consume a smaller proportion of its income on food and turn to the consumption of other commodities or non-necessity goods to improve the quality of living. The inflection point of the

Hong Kong Engel curve is at \$3750 per person, which demarcates the poor from other households.

According to the 1999/2000 "Household Expenditure Survey" conducted by the Hong Kong Census and Statistics, there are a total of 449,000 households, amounting to 28% of Hong Kong households, with expenses per head of less than \$3750. Households living under the poverty line have an average monthly total expenditure per head of \$2520; the average expenditure on food per head is \$1058. The poor households have to "spare food" with a daily \$35 food consumption per head. There are about 110,000 households with a daily expenditure on food per head of below \$24.

There are different ways for poor households to deal with economic hardship: 39.3% of them avoid taking buses, one of the cheapest means of transportation; around one third of them (33.2%) don't switch on the light even when necessary; 31.9% could not afford giving "red pocket money" to their relatives in the last Chinese New Year; close to one quarter (23.8%) of them buy food right before the market closes to take advantage of cheaper prices; and finally almost one fifth (18.4%) of them have at least household member without a bed to sleep in.

There are quite a few poor households that cannot obtain basic living conditions, like having enough food and maintaining good health. Almost one tenth (9.4%) of the poor households cannot afford necessary medicine when getting ill; and 6.8% of them have insufficient food for at least one meal during the last week.

Poverty brings tremendous psychological tensions to poor households: half of them subjectively believe that they are living under severe economic hardship. For about 40% of them, their income does not meet their expenses, and they have to borrow money or use their savings to sustain everyday life.

The poor households are also poor in social resources: their social networks cannot help them borrow money or find a job. Around 30% of them have friends and relatives who are unemployed rather than employed; almost half of them cannot find a friend or relative to borrow money from; and 60% of them do not have friends or relatives able to introduce them to a job.

I and Lee Kim Ming suggest setting \$3750 per head as Hong Kong's "Basic Living Protection Line". In other words, to support the basic living needs of a household, each household member should have at least \$3750 per month. We recommend that the Government set up a "Living Wage" so that a household can earn a basic living without receiving any public assistance. We recommend that the Government set up a minimum wage standard for its employees and those of its contracting out services and subvented social services; the proposed living wage to be at a monthly rate of \$6600, a daily rate of \$250, or an hourly rate of \$32.

CONCLUSION

In this paper, I began by pointing out that there have been significant increases in the expenditure levels of CSSA recipients, the poorest households in Hong Kong. However, though this represent some improvement in their absolute living standard, their expenditure levels and thus their quality of life is still well below those of non-CSSA recipients.

The increase in the expenditure levels of the poor households is mainly due to the increase in their expenditure on housing, owing to mounting property prices and rental costs during the 1990s. The increasing cost of housing is the most important factor in both the rise in living costs and the exacerbation of the problem of poverty in Hong Kong.

Many low-income households have been hit even harder under the weight of redundancy, unemployment and wage-cuts following the 1997 Asian financial crisis. Under the cloak of 'flexible management,' employers in both the public and private sectors are now creating more part-time, temporary and contract jobs. This means a further erosion of both job and income security for employees. Owing to mass unemployment and the threat of redundancy, labour has lost its bargaining power in the market, and is forced to accept whatever is offered.

The quality of life of poor households is in shreds, not only in the sense that their living standards are low, but also that

they are socially excluded from the mainstream of society. Poor households try to make ends meet by reducing their expenditure. They do not switch on the light even when necessary; they do not travel by bus; they do not even have enough food. The most significant fact is that their friends and relatives are unemployed as well, and the majority of them have no one from whom they can borrow money or who can introduce them to a job. The social exclusion effect of their impoverished situation is really the most seriously affects their quality of life.

In order to reduce poverty and improve the quality of life of the poor households, various community economic development projects have been established in Hong Kong since 2001 (Chau and Lau, 2003). These empowering initiatives include setting up production and consumption cooperatives, running alternative community currencies and trade systems, as well as establishing community-based resource recycling networks. Most of these community economic development projects aim at enhancing social capital of the poor households and the community. Their main strategy to poverty reduction is to alleviate the social exclusion upon the vulnerable population and to enhance capacity building in the community. All in all, these projects have provided alternative interventions and policies for poverty reduction in Hong Kong and shed light on new means in improving the quality of life of poor households.

ACKNOWLEDGEMENT

I would like to acknowledge the financial support provided by the CERG Grant 1999–2000 of the Research Grants Council, Hong Kong on the study ‘Drawing Hong Kong’s Poverty Line: An Inter-Disciplinary Study’ (No: CityU 1184/99H).

NOTE

¹ Money amounts in this paper are expressed in Hong Kong Dollars (HKD); from 17 October 1983 the Hong Kong Dollar has been pegged to the US Dollar at an exchange rate of US\$1 to HKD7.8.

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QUALITY OF LIFE PERCEPTIONS AND DIRECTIONS FOR URBAN REGENERATION IN HONG KONG

(Accepted 10 May 2004)

ABSTRACT. Urban regeneration can be an effective tool to promote sustainability and enhance macro-level quality of life if the principles of encouraging participation, building community character, advancing equity, improving environment and enlivening the economy are observed. Through the assessment of various quality of life indicators related to these five basic principles for sustainable urban regeneration by the public, private and community sectors, this paper finds that Hong Kong falls far short of realizing these fundamental principles. There are also considerable discrepancies between the public and non-public (private and NGOs) sectors in terms of evaluating existing quality of life issues and perceiving their relative priorities. The private and community sectors tend to have lower rating of existing situation and consequently a longer priority list. On the contrary, the public sector seems to be more complacent with the existing quality of life situations and has a much shorter priority list. The public sector's more relaxed attitude coupled with a top-down executive-led polity mean that Hong Kong will probably have a long way to go toward sustainable urban regeneration.

INTRODUCTION

This paper explores the relationship between quality of life perceptions and directions for urban regeneration in Hong Kong. The first section argues that sustainable urban regeneration, when done properly, should help boost a city's quality of life, which can be a rather subjective concept. The second section gives a brief overview of the practice of urban renewal in Hong Kong. Once a place that bulldozed everything for development, Hong Kong has now adopted a "4Rs" (redevelopment, rehabilitation, preservation and revitalization) approach that, in theory, should improve the quality of life of the general public. The third section summarizes the macro-perceptions of the public, private and community sectors on

Hong Kong's participatory culture, ability of building communities with characters, facilitating an equitable distribution of costs and benefits, improving the environment and enhancing economic growth, all of which are essential principles for sustainable urban regeneration. The results are then analyzed to identify areas for improvement in urban regeneration in Hong Kong.

QUALITY OF LIFE AND SUSTAINABLE URBAN REGENERATION

The concept of quality of life, similar to sustainable development, has evolved over time (Lim et al., 1999). In the post-WWII period, economic growth was used as a standard measure for quality of life. The failure of the United Nation's first development decade in the 1960s had led to the basic human needs approach in development, emphasizing on satisfying basic human needs and the reduction of absolute poverty. The conception of quality of life extends to basic needs issues, health, education, social security, working conditions and human liberty. Since then, a subjective dimension has been added to the understanding of a good quality of life as equivalent to the enhancement of human capabilities (Sen, 1993).

Hence, quality of life is a complex and multi-faceted concept, embracing objective as well as subjective aspects. As such, people with different socio-economic, cultural and historical background tend to perceive their qualities of life differently. Even those who live and work within a specific cultural context may have a very different evaluation of their qualities of life as a result of different political, social and economic positions. In fact, those within the same social class may have very different perceptions of their environments and hence their qualities of life. Nevertheless, Brown (1999) has set up a conceptual framework for the quality of life at the urban level. He argues that there are two different levels of qualities of life: the micro level referring to the well-being of personal life such as health, income level, personal relationship and satisfaction; and the macro level referring to environmental quality of life such as the living environment, socio-economic conditions, etc. This

paper is interested in understanding this macro level of perceiving the urban quality of life and its implications on urban regeneration. Let us now have a more in-depth understanding of sustainable urban regeneration and why it is related to quality of life debates.

Roughly four phases (two cycles) can be identified in the history of urban regeneration practice since WWII: state-led wholesale redevelopment up to the 1960s; a brief period of multi-dimensional redevelopment and rehabilitation efforts from the mid-1960s to the 1970s; property-led public-private partnership renewal from the 1970s into the 1980s; and the continuation of partnership renewal with an emphasis on 'bringing the community back in' since the 1990s (Table I).

For about two decades after WWII, there was a general belief that economic growth could eventually solve all development problems. As a result, urban regeneration was equated to state-led physical redevelopment. The turning point occurred in the 1960s with the "rediscovery of poverty and a large number of victims of 'multiple' deprivation" (Carmon, 1997, p. 133). It was recognized that massive bulldozing of dilapidated buildings was too expensive in economic and social terms. Urban renewal policy, as argued by Jackson (1980, p. 246), has to be harnessed and be integrated with other social policies both at the national and local levels so as to improve economic efficiency while improving distributional equity.

However, the awakening to 'multiple deprivation' experienced by affected residents in poor neighborhoods was checked by the restructuring of the global economy since the 1970s. In many western cities, the project of urban renewal was to reconstruct the economic, socio-cultural, political-institutional and physical-environmental fabric of cities blighted by the collapse of Fordist manufacturing industrial complexes (Healey et al., 1992, p. 288). This renewal mode was predicated upon the belief that "the private sector [is] the *only possible way* of restoring lasting prosperity to the decaying areas of our towns and cities" (Smith, 1989, p. 241).

TABLE I
Evolution of urban regeneration

Phase	State	Private Sector	Community
Post-WWII–1960s	Clearance (in UK, rehousing of affected residents provided)	Rebuilding/ redevelopment	
1960s–1970s	Decreasing emphasis on bulldozing and comprehensive redevelopment. Emphasis on rehabilitation		Multi-dimensional redevelopment and rehabilitation
1970s–1980s	Public–private partnership in property-led urban regeneration		
1990s–	“New partnership” (state, private sector and community) for sustainable and simultaneous economic, physical and human regeneration		

The economic growth-biased urban renewal strategy in the 1980s had produced “divided cities” (Fainstein et al., 1992; Marcuse, 1993) and “islands of renewal in seas of decay” (Berry, 1985). It became increasingly evident that property-led urban renewal did not offer a reliable foundation for stable and sustainable economic regeneration (Healey et al., 1992). The key task is to link property development investment to real demands and needs of the developing local economy, and to cultural-environmental concerns of local citizens (Healey et al., 1992, p. 290). In fact, increasing social problems in “disadvantaged” neighborhoods have led to the “rediscovery of community,” and a new “partnership” arrangement has been initiated by the government which involves not only the public and private sectors but also the voluntary organizations and the community.

Two major aspects can be summarized in the most recent urban renewal practice. First, there is a need for integrating long-term vision and short-term initiatives embracing physical, social and economic regeneration, and “top-down” and “bottom-up” efforts (Roberts and Sykes, 2000). Second, for genuine integration of various sectors to promote urban renewal and to unite “top-down” and “bottom-up” efforts, partnership is essential between government departments, and between the public and private (business and community) sectors. Hence, sustainable urban regeneration may be perceived as a community-based process directed toward achieving the economic, environmental and social well-being of the people through the rejuvenation and revitalization of the urban fabric (Ng et al., 2001, p. 177). Five dimensions are involved in any sustainable urban regeneration process: inclusive participation by different stakeholders, building communities with character that respect their historical heritages, equitable distribution of benefits and costs to all concerned parties, improving environment and enhancing economic growth (Ng et al., 2001).

These basic principles for sustainable urban regeneration are closely related to a society’s macro-view of its quality of life. It is argued in this paper that a society’s macro-view of participation, community characters, equity, environment and economy will help us assess its capacity and ability of undertaking sustainable

urban regeneration. Before we examine in further detail the macro-perception of the quality of life in Hong Kong and the implications on the implementation of urban regeneration, let us have a brief overview of the renewal practice in the city.

RENEWAL IN HONG KONG: FROM REDEVELOPMENT TO FOUR 'R'S

It is generally agreed that the private sector has played an important role in renewing private residential buildings in Hong Kong.¹ "Dockyards, power stations and oil depots have been redeveloped within a short span of time into large housing estates with comprehensive facilities. Dilapidated buildings have been redeveloped into modern commercial complexes with impressive architectural design. ...about half of all new private domestic units currently come from redevelopment" (Planning, Environment and Lands Branch 1996, p. 5). Susnik and Ganesan (1997) estimated that the average demolition rate of domestic buildings was 570 per year for the decade to 1993. Further, about 70% of these buildings were six-story tenements with an average occupancy of 35 persons per building.

However, there are few dockyards or power stations left in the urban areas and "most of the low-rise buildings have already been redeveloped, often in a piecemeal manner without achieving improvements to layouts, transport networks, community facilities and services" (Planning, Environment and Lands Branch 1996, p. 6). With the disappearance of these low-rise buildings, redevelopment opportunities have diminished because it is harder to acquire 10–15 story buildings in multiple ownership to assemble lots for redevelopment and also the redevelopment gains will be smaller (1996, p. 6). According to the Planning Department (1999), "there has been a consistent decline in the supply of private residential flats through redevelopment in the urban areas since the late 1980s." At the same time, the problem of urban decay has accelerated. According to the Housing, Planning and Lands Bureau,² there are about 9300 private buildings in the urban area which are 30 years old and above. In 10 years time, the number of buildings over 30 years

old will increase by 50%. In Hong Kong, a good majority of buildings over 30 years old are due for redevelopment because they were constructed during a period of rather lax building standards and have generally been poorly maintained. The problem of aging buildings is most serious in older urban areas.

Unlike the heavy commitment of western governments in urban redevelopment, the Government of Hong Kong has played a marginal role in redeveloping private residential buildings to date. The government has been much more active in reclaiming land to accommodate urban growth. It was not until 1988 that the government was involved in setting up the Land Development Corporation (LDC), an independent statutory body, to carry out redevelopment through joint ventures with private developers.³ In 1995, the government undertook a review of its urban renewal policy, followed by a 4-month consultation period. In June 1996, the government issued a policy statement *Urban Renewal in Hong Kong*. One of the proposals in this Statement is to set up an Urban Renewal Authority (URA), which would replace the LDC. Four years after this proposal, the Legislative Council passed the Urban Renewal Authority Ordinance in July 2000 to set up an Urban Renewal Authority (URA) replacing the LDC.

Unlike the previous approach, the URA emphasizes on the following:

- To accelerate redevelopment by replacing old buildings with new ones to provide a better living environment and neighborhood;
- To enable and encourage the rehabilitation of dilapidated buildings to prevent urban decay;
- To preserve by maintaining and restoring buildings of historical and architectural value, and to sustain local characteristics;
- To revitalize through enhancing and strengthening the socio-economic and environmental fabric for the benefit of our urban communities.⁴

And they stress on a partnership approach trying to involve affected communities including tenants and owners; govern-

ment; development and financial institutions; professionals and academics; and other stakeholders. One can argue that the changing approach toward urban regeneration in Hong Kong tallies with international trends discussed in the last section. However, as can be seen from different stakeholders' perceptions of various quality of life issues, they do have very different assessment of Hong Kong's ability toward sustainable urban regeneration.

MACROQUALITY OF LIFE ASSESSMENTS IN HONG KONG AND IMPLICATIONS ON SUSTAINABLE URBAN REGENERATION

In September 2000, the Centre of Urban Planning and Environmental Management of the University of Hong Kong undertook a 6-month study linked to an international comparative research project of urban development outcomes in some 20 cities around the world. The project is known as "Proyecto-Cities" which is being undertaken by Fundacion Metropoli based in Madrid, Spain. A questionnaire survey was sent to representatives of the public sector, business community and civil society, including NGOs and the voluntary sector. A total of 45 questionnaires (15 from each sector) were completed. The respondents were requested to identify Hong Kong's "clusters of excellence" and areas requiring further improvement. Many of the issues listed in the questionnaire were closely related to quality of life issues. In this paper, the answers are re-organized to help us make a better assessment of Hong Kong's ability to undertake sustainable urban regeneration.⁵

The perceptions of the public and private sectors, and the civil society on socio-economic and environmental conditions in Hong Kong are divided into "levels of excellence" and "level of priority." The former is their assessment of the existing situation and the latter is about how important they consider a particular issue is. Only those items with a level of priority reaching 8 or above (out of 10), and the discrepancy between the level of excellence and the level of priority is at least 2 for any of the listed stakeholders are discussed in this paper. Such

selections allow us to identify areas that require improvement if we are serious about sustainable urban regeneration.

As can be seen from Figure 1 below, all the public, private and civil society sectors think that Hong Kong is not performing well in urban redevelopment (5 out of 10) and the issue should receive a relatively high priority (8 out of 10). While the perceptions on urban redevelopment in Hong Kong are strikingly similar among the different stakeholders, their views do differ with reference to other indicators. In the following, the five basic principles used in sustainable urban regeneration, that is, encouraging participation, building community character, advancing equity, improving environment and enlivening the economy, will form the organizing themes for grouping various quality of life indicators. Let us first look at the issue of participation.

Many interesting phenomena can be seen in Figure 2. Ratings of the “level of excellence” by the private sector and to a less extent, the civil society were consistently lower than ratings by the public sector, which were not high anyway. For instance, the average rating of the level of citizen participation by the private sector was only 3 (out of 10) but that of the public sector was 4.5. The private sector gave a very low average score of 3–3.5 to the current situation of participation in political election, democratization and citizen confidence in politicians. This again was significantly lower than the other two sets of stakeholders. The civil society gave a score of 5 to all these

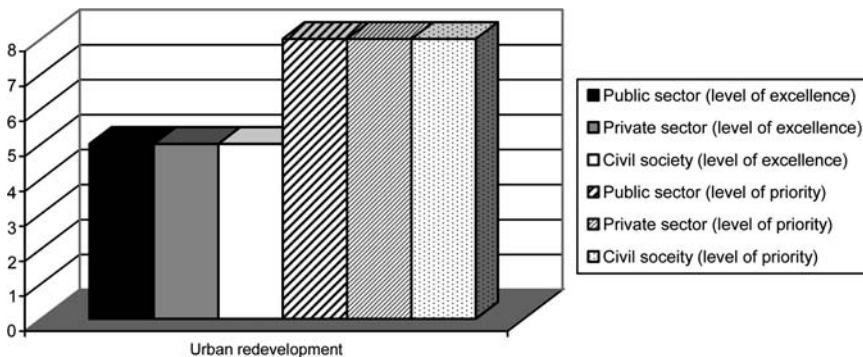


Figure 1. Perceptions of urban redevelopment in Hong Kong.

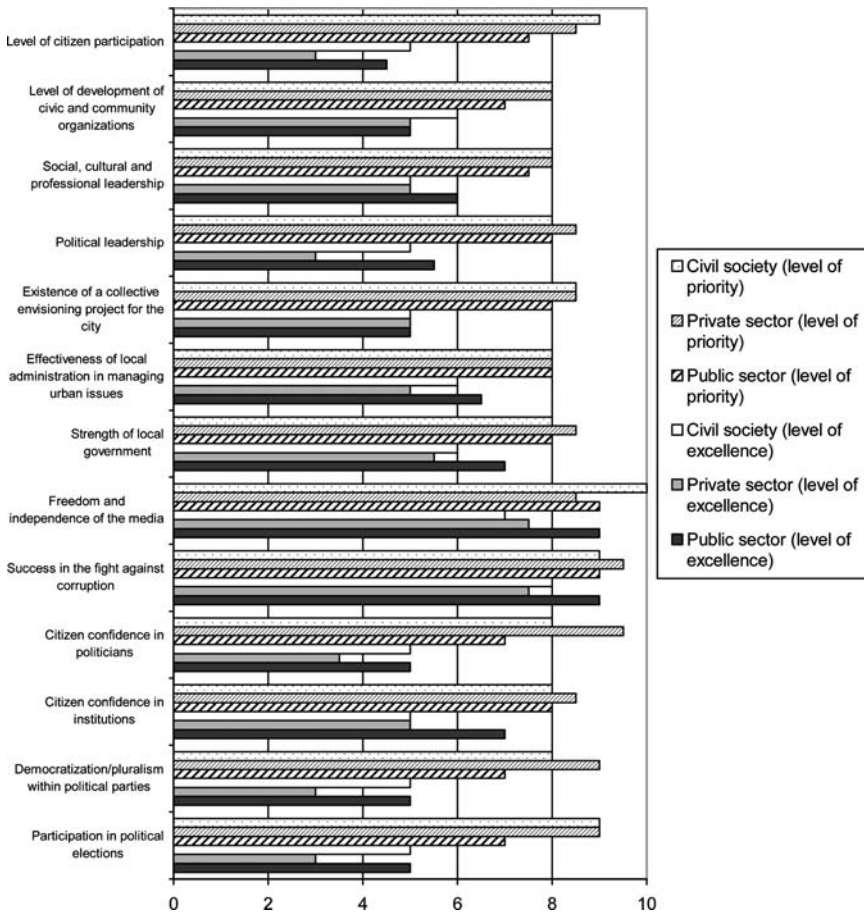


Figure 2. Perceptions of participation in Hong Kong.

indicators whereas the public sector gave a score of at least 5, if not higher marks. The public sector also had a higher rating of citizen confidence in institutions, strength of local government, effectiveness of local administration in managing urban issues and social, cultural and professional leadership (an average score of 6–7) while the ratings of the private sector and civil society were at least one point less for all the items. In other words, in terms of excellence, the public sector tended to give a higher rating of the situation of participation whereas the private sector and the civil society in general did not think that Hong Kong had a participatory culture.

The reverse is true when the level of priority is considered. For almost all the indicators, the private sector and the civil society gave a higher priority score than the public sector. This probably explains why many private individuals in business or the third sector feel a sense of frustration over the opportunities of citizen participation in Hong Kong. Nevertheless, all three stakeholders considered fighting against corruption, freedom and independence of the media, strength of local government, effectiveness of local administration, collective envisioning of the city and political leadership were priority issues to be tackled. Another important principle for sustainable urban development is the need to bring out community characters. Figure 3 summarizes the survey results of the related indicators.

It is very interesting to see the patterns of perceptions repeating again. In general, all three stakeholders did not hold very high regard of indicators related to community characters. While the discrepancies of the perceptions of the public sector and the civil society were less, the frustrations of the private sector could be seen in many of the indicators such as the urban setting for pedestrians, qualities of traditional architecture, water features, historical areas, ecological buffers and greenways and great natural elements (with scores ranging from only 3 to 4). In terms of priority issues related to community characters, the private sector and the civil society had put higher priorities on indicators of the urban park system, low-income residential areas, historical areas, water features, green areas, quality of modern and traditional architecture, urban setting for pedestrians, the need for unique and attractive image, importance of city pride and the external image of the city. In other words, the perceptions of the public sector once again differed from those of the private sector and civil society. Let us see if the same pattern can be found in terms of equity issues (Figure 4).

While the public sector gave average scores of only 5 or less to the balance in income levels, maritime, river front esplanades or walks, facilities for the care of the elderly, the prevention of substandard housing policies and affordability of housing, the private sector and civil society had slightly different ratings

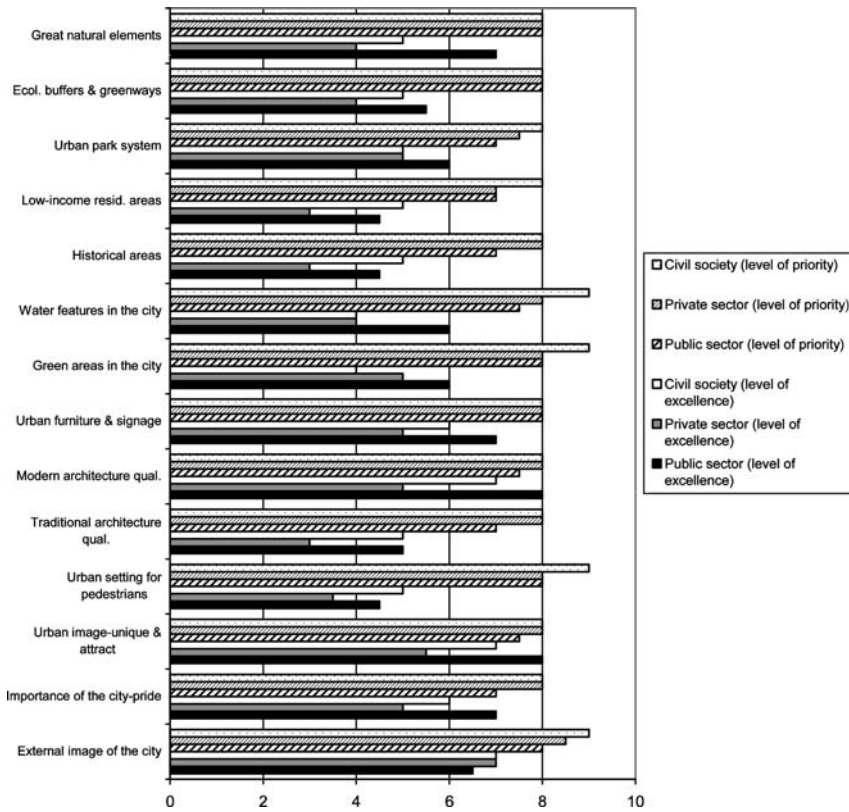


Figure 3. Perceptions of community characters in Hong Kong.

concerning these indicators. The private sector and the civil society did not think that the fight against poverty, a major threat toward equity, was done properly in Hong Kong. Another major difference of opinions with the public sector was the issue of affordability of housing and to a less extent, the prevention of substandard housing. The discrepancies between the public and private sectors could also be seen in the indicators on sports facilities for public use, quality of public medical care, education system suiting the local economy, quality and variety of public housing stock, social cohesion and social development cohesion.

As for the level of priorities, all three sectors had similar aspirations. While the public sector gave top priority (a score of

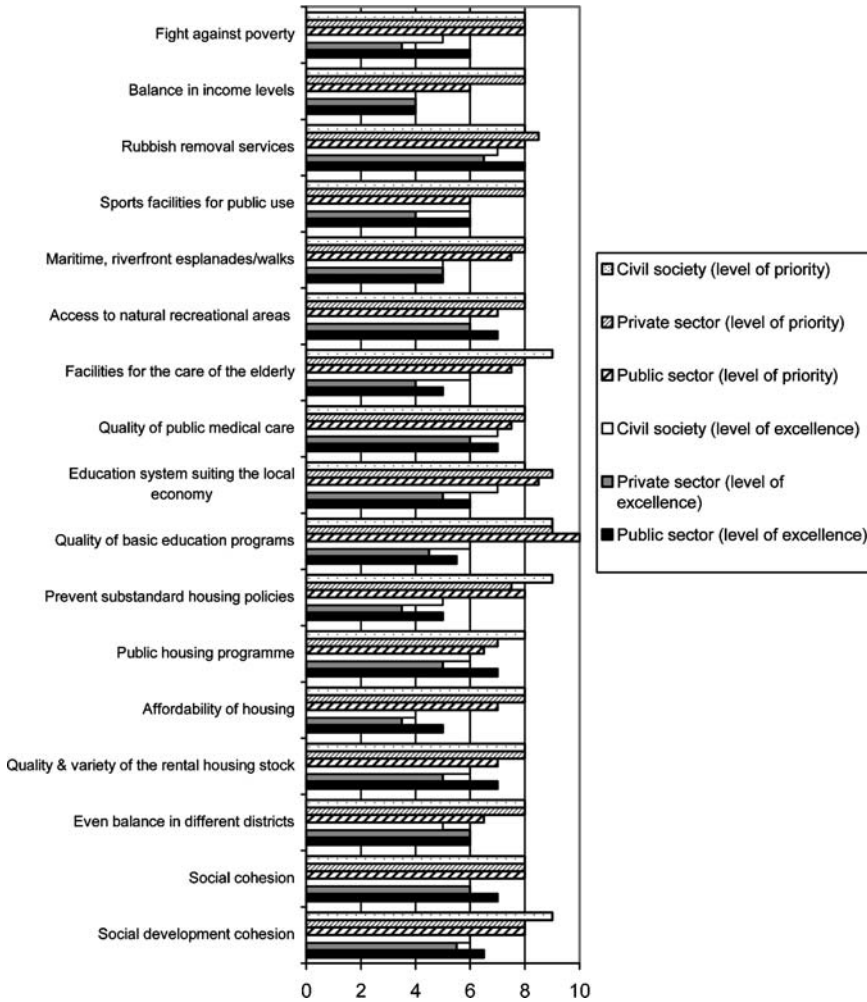


Figure 4. Perceptions of equity issues in Hong Kong.

10) to the quality of basic education programs, and considered balance of income levels, public housing program, even balance in different districts not particularly important (ratings from 6 to 6.5), the private and community sectors rated these latter indicators at an average score of 8, if not more. Nevertheless, it can be seen that educational issues, housing issues and facilities for the elderly and social cohesion were major concerns of all the stakeholders.

In terms of environmental sustainability, the private sector only gave an average score of 4 whereas the scores for the public and community sectors were 5 and 5.5, respectively (Figure 5). Similar to the other indicators closely related to the principles of participation, community characters and equity, the public sector consistently gave a higher rating to the various environmental indicators when compared with those given by the private and community sectors. The graph shows that the private sector and the civil society were particularly disappointed with the current situations of acoustic comfort, air quality, recycling and reuse of wastes, natural water quality, environmental quality and bicycle paths (scores ranging from 2 to 4). In terms of priority issues, while the public sector gave a rating of only 6 to recycling and reuse of waste, natural water

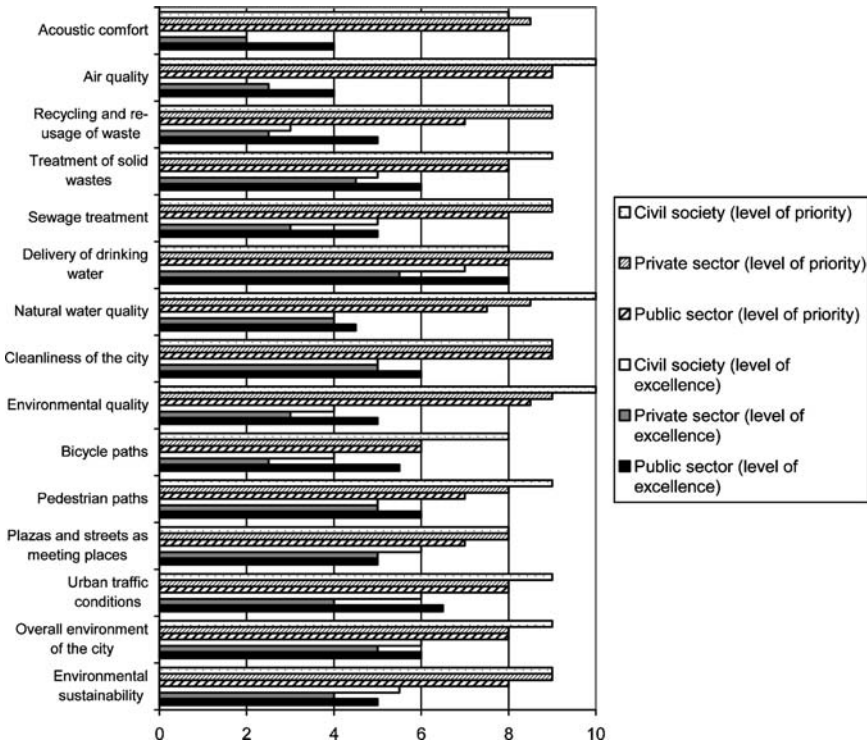


Figure 5. Perceptions of environment in Hong Kong.

quality, pedestrian paths and piazzas and streets as meeting places, the private and community sectors rated these highly (from 8 to 10). All three stakeholders considered that acoustic comfort, air quality, cleanliness of the city, environmental quality, urban traffic conditions, overall environment of the city and environmental sustainability should receive priority attention.

Let us now move to look at the last organizing theme in sustainable urban regeneration and examine the perceptions of the various stakeholders with reference to the relevant quality of life indicators. Figure 6 summarizes the results.

Among all the organizing themes, it seems that the perceptions of the three stakeholders were closest for economic indicators. The most noticing differences were about the level of diversifications of the city's economy, economic activities aiming at improving the environment, and the collaboration and cooperation between universities and businesses. Except the level of economic diversification, the three stakeholders seemed to have closer consensus about the most pressing issues that required immediate attention. These included capacity to generate employment, economic activities that aimed at improving the environment, collaboration and cooperation between private and public sectors as well as businesses and universities.

From the above discussion, we can identify a very interesting phenomenon, that is, the public sector tends to think more highly of Hong Kong's quality of life and the discrepancies between the perceptions of the public, and private and community sectors are quite considerable. As Hong Kong is still a very much top-down, executive-led society, the government plays an important role in formulating and implementing various policies. If the assessments of the government on the current conditions and future importance of various issues are so different from those of the general public, including both the private and community sectors, it is very likely that the general public will be rather passive in responding to government policies as these policies are probably not addressing what they consider as the most pressing issues that need to be tackled with a matter of urgency.

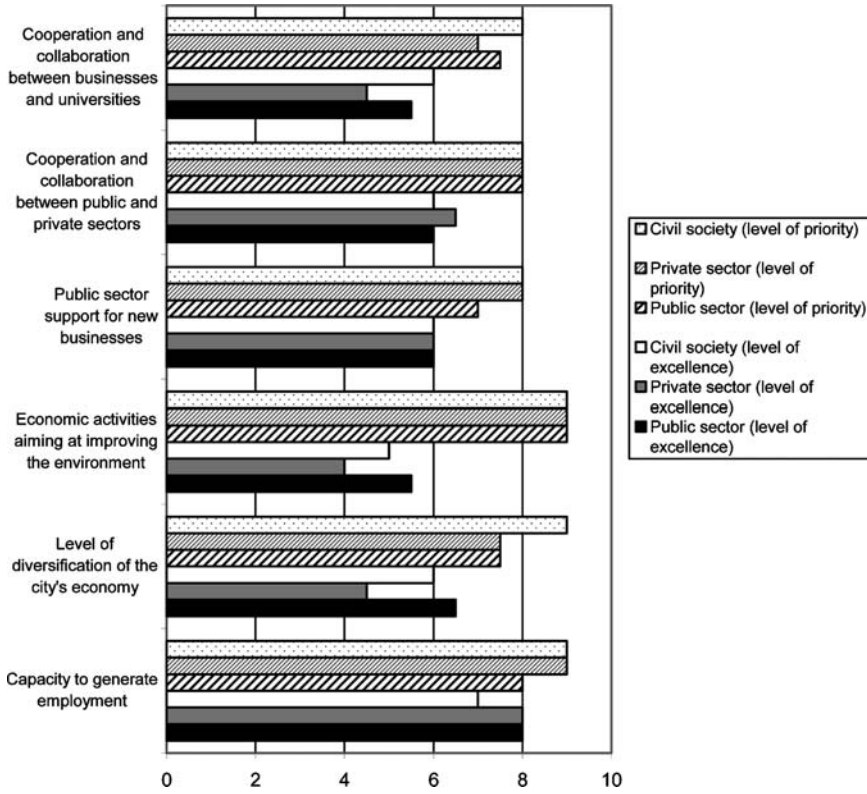


Figure 6. Perceptions of economy in Hong Kong.

Table II attempts to put the results of the macro-quality of life assessment side by side with the principal means of sustainable urban regeneration. It can be seen that a lot more can be done in order to achieve urban regeneration that involves participation, fosters community characters, enhances social equity, improves environment and boosts local economy. However, as mentioned, there are discrepancies of perceptions between the public, and private and community sectors.

Table III lists the most pressing issues that need to be handled as perceived by the public vis-à-vis private and community sectors. It can be seen that compared with the public sector, the private and community sectors have a much longer list of the priority issues.

TABLE II
Macro-quality of life assessment and implications on sustainable urban regeneration

Means	Macro-quality of life assessment
Participation	
<ul style="list-style-type: none"> • All strands of the community should be included, encouraged and empowered to participate at all stages of the regeneration process 	<ul style="list-style-type: none"> • Political and citizen participation had been rated rather poorly by all parties concerned, particularly by the private sector
<ul style="list-style-type: none"> • Comprehensive, balanced and accurate information should be provided to the public 	<ul style="list-style-type: none"> • No matching indicator. However, all three stakeholders agreed that Hong Kong had a free and independent media
<ul style="list-style-type: none"> • Community initiatives and contacts between stakeholders should be encouraged and facilitated 	<ul style="list-style-type: none"> • Little as reflected in low ratings in collective envisioning of the city, citizen confidence in politicians, etc.
<ul style="list-style-type: none"> • Full, accessible and easily understood monitoring should be undertaken 	<ul style="list-style-type: none"> • No matching indicator
<ul style="list-style-type: none"> • Requires an effective and open local government with executive power 	<ul style="list-style-type: none"> • Varied assessment among the stakeholders. Viewed less favorably by the private and community sectors
Community characters	
<ul style="list-style-type: none"> • Provide amenities and open space to facilitate community involvement 	<ul style="list-style-type: none"> • Viewed less favorably by the private and community sectors
<ul style="list-style-type: none"> • Understand the place-making dynamics of a community 	<ul style="list-style-type: none"> • No directly matching indicator
<ul style="list-style-type: none"> • Identify the historical and cultural elements of an area which give it a sense of place 	<ul style="list-style-type: none"> • Not doing a good job as seen by private and community sectors. Higher rating by public sector
<ul style="list-style-type: none"> • Respect these elements when introducing new development to produce space with unique characteristics 	<ul style="list-style-type: none"> • No directly matching indicator
Equity	
<ul style="list-style-type: none"> • Community fairness in access to affordable housing, education, health and welfare services, recreation, shopping 	<ul style="list-style-type: none"> • Viewed more favorably by the public sector than the private and community sectors

TABLE II
Continued

Means	Macro-quality of life assessment
<ul style="list-style-type: none"> • Tackling social exclusion by providing opportunity for a better life for people in poverty, without jobs, with low educational achievement, lacking access to public services, living in degraded environments • Fair and reasonable compensation, adequate rehousing and sufficient social services 	<ul style="list-style-type: none"> • Not doing a good job from the perceptions of non-government sectors, especially by the private sector • No matching indicator. In general pay little regard to redevelopment efforts
Environment	
<ul style="list-style-type: none"> • Improve the physical environment • Conserve and/or recycle non-renewable resources • Reduce pollution • Adopt "green" building techniques • Rehabilitate buildings where feasible • Maintain buildings and structures in good repair • Build to last • Encourage walking and cycling • Maximize public transport accessibility 	<ul style="list-style-type: none"> • Rather low ratings in environmental sustainabilities and various environmental aspects • No matching indicator
Economy	
<ul style="list-style-type: none"> • Linking local production with local consumption • Improve environmental awareness of local business • Economic feasibility is more important than financial feasibility • Stimulate employment opportunities at local and city level • Re-use under-utilized and obsolete land • Recycle obsolete buildings to other uses 	<ul style="list-style-type: none"> • Poor ratings • No directly matching indicator • No matching indicator • Not very impressive • No matching indicator • Capacity acknowledged by all stakeholders • No matching indicators

TABLE III
Perceptions of priority issues in sustainable urban regenerations

Priority issues by the government (a score of 8 or above)	Priority issues by the private and community sectors (a score of 8 or above by both sectors)
Participation by different stakeholders	
1. Political leadership	1. Level of citizen participation
2. Existence of a collective envisioning project for the city	2. Level of development of civic and community organizations
3. Effectiveness of local administration in managing urban issues	3. Social, cultural and professional leadership
4. Strength of local government	4. Political leadership
5. Freedom and independence of the media	5. Existence of a collective envisioning project for the city
6. Success in the fight against corruption	6. Effectiveness of local administration in managing urban issues
7. Citizen confidence in institutions	7. Strength of local government
	8. Freedom and independence of the media
	9. Success in the fight against corruption
	10. Citizen confidence in politicians
	11. Citizen confidence in institutions
	12. Democratization or pluralism within political parties
	13. Participation in political elections
Building communities with characters	
1. Great natural elements	1. Great natural elements
2. Ecological buffers and greenways	2. Ecological buffers and greenways
3. Green areas in the city	3. Historical areas
4. Urban furniture and signage	4. Green areas in the city
5. Urban settings for pedestrians	5. Urban furniture and signage

TABLE III
Continued

Priority issues by the government (a score of 8 or above)	Priority issues by the private and community sectors (a score of 8 or above by both sectors)
6. External image of the city	6. Quality of modern architecture 7. Quality of traditional architecture 8. Urban settings for pedestrians 9. Unique and attractiveness of urban image 10. Importance of city pride 11. External image of the city
Equitable distribution of benefits and costs	
1. Fight against poverty	1. Fight against poverty
2. Rubbish removal service	2. Balance in income levels
3. Education system suiting local economy	3. Rubbish removal service
4. Quality of basic education programs	4. Sports facilities for public use
5. Prevent substandard housing policies	5. Maritime, riverfront esplanades or walks
6. Social cohesion	6. Facilities for the care of the elderly
7. Social development cohesion	7. Quality of public medical care
	8. Education system suiting local economy
	9. Quality of basic education programs
	10. Prevent substandard housing policies
	11. Affordability of housing
	12. Quality and variety of rental housing stock
	13. Even balance of different districts
	14. Social cohesion
	15. Social development cohesion

TABLE III
Continued

Priority issues by the government (a score of 8 or above)	Priority issues by the private and community sectors (a score of 8 or above by both sectors)
Improving environment	
1. Acoustic comfort	1. Acoustic comfort
2. Air quality	2. Air quality
3. Treatment of solid wastes	3. Recycling and reuse of wastes
4. Sewage treatment	4. Treatment of solid wastes
5. Delivery of drinking water	5. Sewage treatment
6. Cleanliness of the city	6. Delivery of drinking water
7. Environmental quality	7. Natural water quality
8. Urban traffic conditions	8. Cleanliness of the city
9. Overall environment of the city	9. Environmental quality
10. Environmental sustainability	10. Pedestrian paths
	11. Plazas and streets as meeting places
	12. Urban traffic conditions
	13. Overall environment of the city
	14. Environmental sustainability
Enhancing economic growth	
1. Cooperation and collaboration between public and private sectors	1. Cooperation and collaboration between public and private sectors
2. Economic activities aiming at improving the environment	2. Public sector support for new businesses
3. Capacity to generate employment	3. Economic activities aiming at improving the environment
	4. Capacity to generate employment

Notes: Only listing indicators with scores of 8 in the 'level of priority.'

CONCLUDING REMARKS

The macro-quality of life assessments by various stakeholders show that Hong Kong still has a long way to go if the city is serious about sustainable urban regeneration. Participatory culture needs to be further cultivated to involve different stakeholders in initiating and implementing urban regeneration. More effective and open local governments with executive power is necessary so that different players can be better informed of regeneration efforts and help monitor consequent developments. According to the perceptions of the stakeholders, Hong Kong is not doing a good job at all in terms of building local communities with characters. Local neighborhoods lack amenities or open spaces for facilitating community involvement. There is also an urgent need to bring out the unique history and culture of a community in the course of restructuring spaces, a concept yet to have wide currency in Hong Kong. Similarly, equitable distribution of social amenities is not perceived to be done properly. It is very important to take care of the needs of all the stakeholders, especially those who are disadvantaged, in the regeneration process.

The rather poor perception of the environment and economy in Hong Kong shows that the city has not utilized the renewal opportunities to improve environmental qualities or boost economic growth. All these point to the fact that the new "4Rs" approach adopted by the Urban Renewal Authority probably needs to be further revised to embrace a comprehensive and integrative sustainability framework so that the five principles discussed throughout this paper can be used to guide the formulation of strategy and implementation of projects.

Another problem that Hong Kong needs to face is the discrepancies between the perceptions of the public sector vis-à-vis the private and community sectors. As can be seen in Table III, many issues regarded as priority ones by the private and community sectors are not on the agenda of the public sector. While the discrepancies between the public and private sectors are less dramatic over environmental and economic issues, the differences of perceptions are considerable for participation,

community characters and equity issues. As Hong Kong is a top-down executive-led polity, such patterns of perceptions are worrying because the government's regeneration policies may fall short of the expectations of the general public. For instance, the private and community sectors consider a collective envisioning project for the city and the strengthening of citizen, democratic and political participation are important for Hong Kong, these are all absent in the public sector's priority list. The public sector's perception of community characters is also different from the private and civil society's ones, which focus more on historical areas, architecture and urban imaging.

The quality of life survey results provide a convenient set of indicators for us to assess Hong Kong's efforts toward sustainable urban regeneration. The results are not particularly encouraging. And all stakeholders, in particular the public sector, have to work much harder for a better and more livable urban environment.

NOTES

¹ In Hong Kong, public housing, which amounts to close to half of existing housing stocks, is provided by the quasi-public Hong Kong Housing Authority. In fact, Housing Authority has contributed significantly to improving the urban environment in Hong Kong through its redevelopment projects. However, in this paper, we will focus on private sector residential redevelopment.

² Extracted from website of Housing, Planning and Lands Bureau, The Government of Hong Kong: <http://www.hplb.gov.hk/eng/policy/urs.htm>, accessed in April 2004.

³ The Corporation had received a start-up loan of HK\$31 (US\$4) million from the Government, which had been repaid with interest. As boasted by the Land Development Corporation, it had not used one single cent of tax payers' money in renewing the urban fabric.

⁴ Adopted from: <http://www.ura.org.hk/html/c204000e1e.html>, viewed on August 22, 2003.

⁵ Information on the survey results can be found in an unpublished report in: CUPEM (2001), *Study on Hong Kong's Urban Innovations and their Impact on the City's Physical Form and Metropolitan Structure*, Hong Kong: CUPEM.

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SUBJECTIVE RESIDENTIAL ENVIRONMENT AND ITS IMPLICATIONS FOR QUALITY OF LIFE AMONG UNIVERSITY STUDENTS IN HONG KONG

(Accepted 22 March 2004)

ABSTRACT. This paper reports the results of a convenient sample survey of 500 Hong Kong university students conducted in May 2003. The main aim of the survey was to investigate the respondents' perception of the residential environment and its implications for the quality of life (QOL). Results indicated that the respondents were generally satisfied with the residential environment, scoring a mean satisfaction rating of 3.32, on a 5-point Likert scale. The type, size and age of a respondent's home, years of occupancy and attending university were found to be significantly related to the overall satisfaction. Transport (4.37), environmental quality (4.30), and public utilities (4.25) were reported to be the most important infrastructures for the QOL, but environmental quality (3.21), education (3.11) and greening (2.98) were considered to be the least satisfactory ones. The desirable distribution of facilities and services was defined by their functions and the new urban designs were appreciated by the respondents. Although available space was less than the ideal and public transport was a serious concern, the respondents had adapted well to the high-density environment and enjoyed the urban life in Hong Kong. It is hoped that the results and findings of this study can provide a reference for the formulation of future development strategy in Hong Kong.

KEY WORDS: Hong Kong, quality of life, residential environment, subjective assessment

INTRODUCTION

Hong Kong is a densely populated metropolis with a population of more than 6.7 million (Census and Statistics Department, 2002). Because of the hilly topography, the population is unevenly distributed. More than half of the population is concentrated around the two sides of the harbor, namely the

north shore of Hong Kong Island and Kowloon. Together, these represent only about 20% of the total land area (1101 km²). Development of the north shore of Hong Kong Island has taken the form of a linear city (Hughes, 1996), located on a narrow strip of flat and reclaimed land, hemmed in by the mountains and the sea. The linear city is about 14 km in length but is only 300 m wide at many points. Even in Kowloon, the urban area generally is only about 2 km deep between the mountains and the sea. The uneven population distribution makes metropolitan Hong Kong one of the most densely populated areas in the world. The overall population density is about 6300 persons/km². The gross population density in Hong Kong Island and Kowloon is about 26000 persons/km² but on a net site basis, it can be as high as about 50000 persons/km² in some parts of Kowloon (Census and Statistics Department, 2002). Because rapid urbanization is constrained by the shortage of land, there is a constant need to accommodate and find a balance between different land use types in Hong Kong. However, the provision of large buffers of space between incompatible developments is often not possible. Furthermore, high-rise and high-density residential buildings have been developed in order to meet the increasing demand for housing (Zhang, 2000). Consequently, many districts consist of dense housing mixed with commerce and other land uses. With incompatible land uses in close proximity and infrastructures that fall short of modern standards, problems of pollution and waste disposal are common in some old districts where comprehensive planning was lacking in the past (Planning, Environment and Lands Branch, 1993).

The concept of quality of life (QOL) refers to a person's overall sense of well-being, including all aspects contributing to his/her subjective satisfaction (Campbell et al., 1976; Nausbaum and Sen, 1993; Cummins, 1998; Diener et al., 1999). These aspects include, for instance, health, family, work, the social network, and, of course, the residential environment. Although a few researchers argue that the quality of the living environment is of minor importance for the QOL (e.g., Craik and Zube, 1976), it is generally agreed that the quality of one's life is greatly affected by

the quality of the environment in where one lives because it is simply the space where most aspects of life are articulated (Peck, unpublished Ph.D. Dissertation; Lee and Weber, 1984; Mares et al., 2002; Ibrahim and Chung, 2003). While the high-density development may imply crowdedness and a degrading urban environment that has negative effects on both human behavior and health (Ruback and Riad, 1994; Root, 1997), QOL seems difficult, if not possible, to achieve in Hong Kong.

Most studies of QOL previously done in Hong Kong used the economic growth and social development as a measurement of QOL (e.g., Tang, 1998; Estes, 2002). Some researchers investigated the psychological change or the behavioral adjustment in the people (e.g., Mitchell, 1971; Chan 1999). However, no effort has been made to explore what would be an ideal residential environment with respect to the QOL in Hong Kong. Behind the broad view of what constitutes the ideal residential environment and QOL are a number of themes that deserve some attention. For example, what do the Hong Kong people feel about the quality of their residential environment? Which specific aspects of the environment do they feel are the most important? Which specific aspects of the environment are they most satisfied with? What do they feel about the urban design of metropolitan Hong Kong? None of these questions can be addressed with any degree of confidence unless we ascertain the feelings of the people who are experiencing directly these conditions. With this in mind, a survey of 500 Hong Kong university students was carried out to look at some of the above themes so that their perception of the residential environment could be examined with respect to the QOL. University students were chosen as the subjects of the study because they are highly respected by the public. According to the statistics of the Census and Statistics Department (2002), there were only 83 200 full-time students attending accredited financing post-secondary programmes in 2001. Because they are the potential elite class of the society, they are likely to be one of the major forces in the future nurturing and shaping of the development of Hong Kong. Knowing their needs and demands would ensure that the planned urban environment matches their environmental quality criteria. Therefore, results and findings of

this study may cast some light on how the city can be better developed in the future.

METHOD

Samples

For the purpose of this study, 500 respondents were conveniently sampled from 8 universities in Hong Kong. Respondents were chosen as far as possible evenly spread throughout the day, at points of heavy student congregation such as student canteens and resting places. The data were gathered by means of personal interviews conducted on the campuses using a structured questionnaire. The interviewing medium was Chinese. The survey was conducted in May 2003.

The Questionnaire

The questionnaire consisted of 53 questions that were designed to assess five aspects of the residential environment, namely:

- Overall satisfaction with the residential environment (1 question)
- Importance of infrastructures for the QOL and satisfaction with these infrastructures (22 questions)
- Spatial distribution of community facilities and services (6 questions)
- Urban design and form (16 questions)
- Transport (8 questions)

The wording of most questions (41 questions) occurred in the following format. For example, with an introductory statement such as “You are living in a quality residential district.” or “Environmental quality is important to QOL.”, the respondents were asked to select their answers from a 5-point Likert scale of (1) “strongly disagree”, (2) “disagree”, (3) “neutral”, (4) “agree” and (5) “strongly agree.”

The 6 questions on the spatial distribution of community facilities and services were presented using the following format.

An example of these questions was “What is the desirable distribution of medical and health facilities? (a) concentrated in the district’s downtown, (b) concentrated on the periphery of the district, (c) evenly distributed or (d) distribution is not important.”

In order to check whether any discrepancies existed between the ideal and the reality of some aspects of the residential environment, 6 complementary questions were asked. For example, “What is the ideal distance between one building and another (as a reference, a standard swimming pool is 50 m in length)?” and “What is the actual distance between your building and the adjacent one?”

Finally, some personal characteristics and socioeconomic variables of the respondents including their gender, their home type, size and nature, and years of occupancy, their family size, their study program and university, and their years of studying at university were recorded. Additional information was acquired from field observations and published materials, such as Government reports.

RESULTS

Background of Respondents

Of 500 respondents, 119 respondents were sampled from The Chinese University of Hong Kong, 51 from The University of Hong Kong, 153 from The Hong Kong Polytechnic University, 141 from City University of Hong Kong and 36 from the left, respectively. The majority of them were undergraduate students (89.8%) but a few were graduate students or studying for associate degrees (6.8%). 50.2% of the respondents were male and 48.0% were female. 38.7% of respondents lived in public housing, 35.5% lived in private housing and 25.8% were in other residential categories.

Overall Satisfaction

The mean of the overall satisfaction with the residential environment was found to be 3.32 ± 0.90 . 50.8% of the

respondents agreed or strongly agreed that they were living in a quality residential district, only 21.0% of the respondents disagreed or strongly disagreed (Table I). It can be interpreted that the respondents were generally satisfied with their residential environment. One-way analysis of variance (ANOVA) and Pearson correlation analysis were employed to determine whether overall satisfaction varied significantly with the personal characteristics and socioeconomic variables of the respondents. The results are listed in Tables II and III. In this study, the personal characteristics and socioeconomic variables where there were statistically significant differences in the overall satisfaction score included home type ($F = 4.678$, $df = 5$, $p = 0.000$, $Eta^2 = 0.046$) and attending university ($F = 3.037$, $df = 4$, $p = 0.017$, $Eta^2 = 0.024$). The factors which were found to be significantly correlated with the overall satisfaction score were age of home ($r = -0.272$, $n = 446$, $p = 0.000$), home size ($r = 0.159$, $n = 447$, $p = 0.001$), and years of occupancy ($r = -0.169$, $n = 466$, $p = 0.000$). On the other hand, the respondents' gender, size of family, elevation of home, study program and years of studying at university were found not to affect significantly their overall satisfaction.

TABLE I
Overall satisfaction score of residential environment

Overall satisfaction ^a	Rating ^b					Mean \pm SD
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
Male ($n = 251$)	1.2	9.4	14.2	22.8	2.6	3.32 \pm 0.92
Female ($n = 240$)	1.0	9.2	13.2	23.2	1.4	3.31 \pm 0.88
Over- all ^c ($n = 491$)	2.2	18.8	28.2	46.8	4.0	3.32 \pm 0.90

^a Introductory statement: "You are living in a quality residential district."

^b 1: strongly disagree; 2: disagree; 3: neutral; 4: agree and 5: strongly agree.

^c 9 respondents refused to indicate their genders.

TABLE II
Results of ANOVA on overall satisfaction score

Variables	<i>F</i>	df	<i>p</i> -value	Eta ²
Gender (male, female)	0.031	1	0.860	0.000
Home type (detached house, private quarter, public housing, homeownership purchasing scheme, hostel, others)	4.678	5	0.000**	0.046
Attending University (The Chinese University of Hong Kong, The University of Hong Kong, The Hong Kong Polytechnic University, City University of Hong Kong, and others)	3.037	4	0.017*	0.024
Study program (Arts, Sciences, Social Sciences, Business, Professional)	1.947	4	0.102	0.024

* $p < 0.05$; ** $p < 0.01$.

TABLE III
Results of Pearson correlation analysis on overall satisfaction score

Variables	<i>r</i>	<i>n</i>	<i>p</i> -value
Age of home (years)	-0.272	446	0.000**
Home size (ft ²)	0.159	447	0.001**
Elevation of home (nth floor)	0.083	479	0.069
Years of occupancy (years)	-0.169	466	0.000**
Size of family (number of people)	0.037	486	0.421
Years of studying at university (years)	-0.089	483	0.051

* $p < 0.05$; ** $p < 0.01$.

Importance of and Satisfaction With Various Infrastructures

In this study, respondents were asked to rate the importance of various infrastructures for the QOL. This was done in an attempt to identify which aspects of their residential environment were deemed to be more important by the respondents so that we can understand what they really search for in pursuing a better QOL. The results are listed in Table IV. The respondents indicated that all the infrastructures listed in this study were important for the QOL as none of them obtained a mean importance score lower than 3.5. The importance scores were significantly different among various infrastructures ($F = 31.339$, $df = 10$, $p = 0.000$, $\text{Eta}^2 = 0.054$). Of them, the three infrastructures which were rated as the most important were transport (4.37 ± 0.67), environment quality (4.30 ± 0.75) and public utilities (4.25 ± 0.68). The three which were rated as the least important were education and culture (4.10 ± 0.77), housing (4.06 ± 0.72) and greening (3.65 ± 0.95).

In addition to the above, the respondents were asked to rate their degree of satisfaction with each of the various infrastructures. This was done to evaluate the degree to which the respondents were satisfied with each of the infrastructures, and to identify those infrastructures with which the respondents were most satisfied or dissatisfied. The findings are listed in Table V. The respondents were satisfied with most of the infrastructures listed as they attained a mean satisfaction score higher than 3.0.

TABLE IV
Level of importance of various infrastructures

Infrastructures ^a	Rating ^b					Mean ^c ± SD
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
Transport (<i>n</i> = 500)	0	1.6	6	46.6	45.8	4.37 ± 0.67
Environmental quality (<i>n</i> = 498)	0.40	2.21	8.43	44.58	44.38	4.30 ± 0.75
Public utilities (<i>n</i> = 500)	0.4	1	8.4	53.6	36.6	4.25 ± 0.68
Recreation (<i>n</i> = 499)	0.20	2.40	8.22	54.31	34.87	4.21 ± 0.71
Land use (<i>n</i> = 500)	0.4	1	6.8	65.2	26.6	4.17 ± 0.62
Leisure (<i>n</i> = 499)	0.60	4.01	9.02	52.10	34.27	4.15 ± 0.79
Medical and health (<i>n</i> = 497)	0.60	2.62	9.86	58.15	28.77	4.12 ± 0.73
Public services and welfare (<i>n</i> = 499)	0.20	3.61	9.42	58.32	28.46	4.11 ± 0.73
Education and culture (<i>n</i> = 498)	0.40	4.82	8.43	56.83	29.52	4.10 ± 0.77
Housing (<i>n</i> = 498)	0	3.01	14.06	56.63	26.31	4.06 ± 0.72
Greening (<i>n</i> = 500)	1	10.8	30.4	38	19.8	3.65 ± 0.95

^a Introductory statement: e.g., "Transport is important to QOL."

^b 1: strongly disagree; 2: disagree; 3: neutral, 4: agree and 5: strongly agree.

^c *F*:31.339, *df* = 10, *p* = 0.000, *Eta*²:0.054.

TABLE V
Level of satisfaction with various infrastructures

Infrastructures ^a	Rating ^b					Mean ^c ± SD
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
Transport (<i>n</i> = 500)	2.4	14.6	13.6	53.8	15.6	3.66 ± 0.99
Public services and welfare (<i>n</i> = 499)	0.80	11.22	25.25	57.31	5.41	3.55 ± 0.79
Medical and health (<i>n</i> = 500)	1	15	29.4	50.6	4	3.42 ± 0.83
Recreation (<i>n</i> = 498)	2.41	15.86	28.51	44.18	9.04	3.41 ± 0.94
Public utilities (<i>n</i> = 500)	3.2	17.2	29.6	46	4	3.30 ± 0.91
Housing (<i>n</i> = 497)	3.02	16.50	33.40	41.65	5.43	3.30 ± 0.91
Leisure (<i>n</i> = 500)	3.8	23.8	25.2	39.6	7.6	3.23 ± 1.02
Land use (<i>n</i> = 500)	1.2	24	29	42.2	3.6	3.23 ± 0.90
Environmental quality (<i>n</i> = 498)	5.42	22.89	24.90	38.76	8.03	3.21 ± 1.05
Education and culture (<i>n</i> = 500)	3	26	31.8	35.2	4	3.11 ± 0.94
Greening (<i>n</i> = 499)	6.21	25.65	36.07	28.26	3.81	2.98 ± 0.97

^a Introductory statement: e.g., "You satisfy with the transport of your residential district."

^b 1: strongly disagree; 2: disagree; 3: neutral; 4: agree and 5: strongly agree.

^c $F = 21.336$, $df = 10$, $p = 0.000$, $Eta^2 = 0.037$.

The satisfaction scores were significantly different among various infrastructures ($F = 21.336$, $df = 10$, $p = 0.000$, $\text{Eta}^2 = 0.037$). Of them, the three infrastructures which obtained the highest satisfaction score were transport (3.66 ± 0.99), social services and welfare (3.55 ± 0.79) and medical and health (3.42 ± 0.83). The three which had the lowest score were environmental quality (3.21 ± 1.05), education and culture (3.11 ± 0.94) and greening (2.98 ± 0.97).

Spatial Distribution of Community Facilities and Services

The spatial distribution of community facilities and services is as important as the adequacy of the provision because the location of these facilities affects the whole gamut of daily activities (Wong, 1990). Location is of prime importance in an individual's choice of activities, acting as the focus for related patterns, for instances, the frequency, place and travel time needed for shopping, schooling and recreation, etc. (Beckmann, 1999). This study sought the opinions of the respondents concerning the spatial distribution of these facilities. The results are summarized in Table VI. The results indicated that, with the exception of greening that its location was not an issue, the preferred distribution varied with respect to different community facilities and services. Chi-square test confirmed the association of preferred distribution with community facilities and services ($\chi^2 = 625.338$, $df = 15$, $p = 0.000$).

Urban Design and Form

Rapid changes are clearly taking place in the cityscape of Hong Kong. In order to provide the increasing population with a better living environment, the Hong Kong Government has been involved in the building of new towns and the renewal of older districts since the 1960s (Yeh and Fong, 1984; Lai, 1993; Adams and Hastings, 2001). In these newly developed and re-developed areas, Hong Kong planners and architects have incorporated various new urban designs as a means of enhancing the quality of urban life (Ganesan and Lau, 2000). In this study, the respondents were asked to evaluate some of these designs, including

TABLE VI
Preferred distribution of community facilities and services

Facilities and services ^a	Percentage ^b (%)			
	Concentrated in district's downtown	Concentrated on the periphery of the district	Evenly distributed	Distribution not important
Medical and health ($n = 499$)	19.24	23.05	52.30	5.41
Public services and welfare ($n = 495$)	19.39	28.08	43.43	9.09
Recreation ($n = 499$)	18.44	27.86	48.70	5.01
Education and culture ($n = 498$)	34.94	29.12	30.32	5.62
Leisure ($n = 498$)	51.61	22.29	22.69	3.41
Greening ($n = 498$)	8.63	22.29	36.55	32.53

^a Introductory statement: e.g., "What is the desirable distribution of medical and health facilities?"

^b $\chi^2 = 625.338$, $df = 15$, $p = 0.000$.

multi-purpose district downtown, all-in-one leisure complex, high standard school network, large shopping mall and central park. The results are listed in Table VII. In general, these designs were appreciated by the respondents as they obtained a mean score higher than 3.5. There were significant differences in terms of appreciation among these designs ($F = 15.087$, $df = 4$, $p = 0.000$, $\text{Eta}^2 = 0.024$).

Because land is an extremely scarce resource in Hong Kong, there is a tendency to maximize the use of each piece of developable land. Consequently, wherever it is physically possible and environmentally acceptable, the physical form of the cityscape is characterized by multi-storey premises which are closely packed together. In this study, the respondents were asked to evaluate some aspects of the urban form. The results indicated that the respondents were very aware of the importance of space for the quality of urban life. They gave high ratings to public space (4.30 ± 0.73), inter-building space (4.16 ± 0.70) and inter-block space (4.15 ± 0.69) (Table VIII). The scores were significantly different among various aspects of the urban form ($F = 130.527$, $df = 6$, $p = 0.000$, $\text{Eta}^2 = 0.185$). In this study, the respondents reported a mean inter-building distance of 35 ± 42 m ($n = 345$) that was very much shorter than the desirable inter-building distance of 60 ± 81 m ($n = 382$). The mean inter-block distance of 101 ± 106 m ($n = 330$) was also shorter than the desirable inter-block distance of 189 ± 249 m ($n = 374$). This indicated that the physical space available to city dwellers is less than ideal in Hong Kong.

Transport

A city cannot function without an efficient transport system that provides convenient linkages between places of residence, centers of employment and economic activities, and community, social and recreational facilities (Ganesan and Lau, 2000). The importance of transport infrastructure is clearly indicated by the fact that the respondents ranked it as the highest priority, as shown in Table IV. In this study, the respondents were asked to evaluate various aspects of transport. The results are

TABLE VII
Evaluation score of some new urban designs

Urban designs ^a	Rating ^b					Mean ^c ± SD
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
Multi-purpose district downtown (<i>n</i> = 499)	0	2.40	13.23	54.31	30.06	4.12 ± 0.72
All-in-one leisure complex (<i>n</i> = 498)	0.20	4.42	17.27	53.82	24.30	3.98 ± 0.78
School network (<i>n</i> = 500)	0.0	3.6	19.4	55.8	21.2	3.93 ± 0.75
Central park (<i>n</i> = 500)	0.4	4.6	28.0	46.2	20.8	3.82 ± 0.82
Large shopping mall (<i>n</i> = 500)	1	8.8	23	47.2	20	3.76 ± 0.90

^a Introductory statement: e.g., "A quality residential district should have a multi-purpose district downtown."

^b 1: strongly disagree; 2: disagree; 3: neutral, 4: agree and 5: strongly agree.

^c $F = 15.087$, $df = 4$, $p = 0.000$, $\text{Eta}^2 = 0.024$.

TABLE VIII
Evaluation score of various aspects of urban form

Aspects of urban form ^a	Rating ^b					Mean ^c ± SD
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
Public space (<i>n</i> = 499)	0.60	1.80	7.21	47.90	42.48	4.30 ± 0.73
Inter-building space (<i>n</i> = 497)	0.60	1.61	8.85	58.75	30.18	4.16 ± 0.70
Inter-block space (<i>n</i> = 498)	0.00	2.01	11.45	56.22	30.32	4.15 ± 0.69
Surrounding landscape (<i>n</i> = 497)	0.20	2.01	15.69	46.68	35.41	4.15 ± 0.77
Height of building (<i>n</i> = 482)	0.83	4.77	29.05	52.90	12.45	3.71 ± 0.77
Layout (<i>n</i> = 499)	0.60	7.21	37.27	41.28	13.63	3.60 ± 0.83
Color and form of building (<i>n</i> = 496)	2.62	17.14	43.35	29.64	7.26	3.22 ± 0.90

^a Introductory statement: e.g., "A quality residential district should have sufficient public space."

^b 1: strongly disagree; 2: disagree; 3: neutral; 4: agree and 5: strongly agree.

^c *F* = 130.527, *df* = 6, *p* = 0.000, *Eta*² = 0.185.

listed in Table IX. It is found that the respondents were more concerned about public transport and vehicular traffic (ranging from 4.13 to 4.29) than about pedestrian (3.61) and bike traffic (3.44). The scores were significantly different among various aspects of transport ($F = 111.488$, $df = 5$, $p = 0.000$, $\text{Eta}^2 = 0.157$). The respondents reported that they usually spent 43 ± 21 m ($n = 482$) for traveling to work or school, which was close to what they were willing to spend (35 ± 20 min, $n = 483$).

DISCUSSION

The significance of this study stems from its potential for evaluating the strengths and drawbacks of the existing development by identifying which were the welcoming and which were the problem areas, the causes of satisfaction and dissatisfaction, and the priorities for urban design, etc. This information is essential to guide the efforts to create a better living environment that contributes to the convenience of urban life and the development of a good community structure, and consequently produces a better QOL. It may also assist in the formulation of future development strategies in Hong Kong. The author hopes that the results and findings of this study will be of interest and relevance to other cities facing similar population and development pressures.

Judged by many criteria of western societies, a highly compact city like Hong Kong would not be appealing as “a nice place to live”. Nevertheless, the respondents in this study were quite satisfied (3.32 ± 0.90) with their residential environment. This indicates that high-density development does not necessarily mean that the quality of living environment has to be sacrificed. On the contrary, it can bring benefits that may be easily overlooked. For example, a compact city form can enhance convenience and accessibility. Because most activities are located near to one another, substantial economies of both time and money can be made and social and economic interactions are stimulated (Fung, 2001).

TABLE IX
Evaluation score of various aspects of transport

Aspects of transport ^a	Rating ^b					Mean ^c ± SD
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	
Various travel options (<i>n</i> = 500)	0	1.2	6.6	54.4	37.8	4.29 ± 0.64
Road network for vehicle (<i>n</i> = 500)	0	2	7.6	52.4	38	4.26 ± 0.69
Smooth vehicular flow (<i>n</i> = 495)	0.20	2.42	11.92	53.13	32.32	4.15 ± 0.73
Node-to-node traffic (<i>n</i> = 500)	0.2	2.8	14	50.2	32.8	4.13 ± 0.76
Pedestrian walkway (<i>n</i> = 500)	0.6	8.2	34	44.6	12.6	3.60 ± 0.83
Bike path (<i>n</i> = 500)	1	14.2	37.4	34.4	13	3.44 ± 0.92

^a Introductory statement: e.g., “The transport system of a quality residential district should have various travel options.”

^b 1: strongly disagree; 2: disagree; 3: neutral; 4: agree and 5: strongly agree.

^c *F* = 111.488, *df* = 5, *p* = 0.000, *Eta*² = 0.157.

In this study, it is found that the properties of a respondent's home (i.e., the type, age, size, years of occupancy) and attending university both had a significant influence on the overall degree of satisfaction, although the effect was not strong. An older and smaller home, and a longer period of occupancy generally generated a lower overall satisfaction score. This finding may indicate that the overall satisfaction with the residential environment is not merely a subjective evaluation of the quality of the district where the respondent resided. It is also affected by the daily experience in those places where the respondent spends most of his/her time, such as home and school. To examine this hypothesis, it is recommended that the social class background of the respondents should be included in future studies because people in different social classes may live in different living environments. They may also have different expectations and satisfaction levels concerning their living environment.

Quality of life is impossible to achieve if there is inadequate provision of infrastructures. No sizeable community can live satisfactorily without such infrastructures as transport network, schools, recreational outlets, hospitals and clinics, and institutions for social services (Ng, 2000; Cook and Ng, 2001). This is particularly significant in Hong Kong. As high-density development is inevitable, every community facility and service has to meet the heavy demands of a large mass of inhabitants. The importance of infrastructures for the QOL is clearly shown by their high mean importance scores (ranging from 3.65 to 4.37, Table IV). However, the mean satisfaction scores (ranging from 2.98 to 3.66, Table V) are generally lower than the importance scores, showing that there is room for improvement. Furthermore, the relatively low satisfaction scores for environmental quality and greening highlight the challenge of environmental degradation in metropolitan Hong Kong. As mentioned before, due to the lack of comprehensive planning in the past, many old districts in Hong Kong are suffering from problems of incompatible land uses, pollution and waste disposal.

At the present time, the Hong Kong Planning Standards and Guidelines provides a broad framework to guide planning at all levels, from broad strategic to local district planning. However,

blind compliance with the standards and indices cannot in itself guarantee a good quality residential environment. Because of the diversity of life and activities, no universally preferred distribution exists among the various community facilities and services (Table VI). Therefore a people-oriented approach to planning should be adopted in order to create a pleasant residential environment that meets the expectations of the people. In fact, the desirable distribution of the facilities tends to be defined by their functions. For example, there is a preference for the medical facilities to be evenly distributed throughout the city to permit rapid access. In case of leisure facilities, however, it is preferred that they be concentrated in the downtown area so that the city dwellers can carry out several leisure activities, such as shopping and watching movies, in the course of a single trip (Xue et al., 2001). Therefore, it is not surprising that the multi-purpose district downtown and the all-in-one leisure complex were especially appreciated by the respondents (Table VII). The indifference of the respondents towards greening's location might be a reflection of a low environmental consciousness. This concurs with the lowest priority given to greening among the various infrastructures, as shown in Table IV.

A common criticism of high-density development is that it may create a crowded environment which would cause negative effects on the population's health and social adaptation (Ruback and Riad, 1994; Root, 1997). This may be due to the misconception that density is the same as crowding. Density is an objective measure of the physical condition involving a limitation of space, but crowding is a subjective interpretation of the objective reality (Stokols, 1972; Westover, 1989). Given the high-density setting in Hong Kong, the important point is to create a satisfactory living environment which avoids a feeling of crowdedness (Chan, 1999). Although both the public space and the inter-premise space may be less than the ideal, the respondents had adapted well to the high-density environment as can be seen from the high satisfaction scores given both to the overall residential environment and to its various aspects. In fact, Hong Kong people are sophisticated with respect to space management. For example, the available space is optimized by

using space saving furniture or by optimal scheduling of activities (Chan, 1999).

If one acknowledges the reality that every activity in Hong Kong is competing for scarce land, it is obvious that not much land can be released for building roads. However, the high-density development has helped to make the public transport systems extremely efficient and viable because the demand is so concentrated (Yeh, 2000). It also means that the transport costs can be maintained at a reasonable level without a Government subsidy (Fung, 2001). It is for this reason that transport was considered by the respondents to be the most satisfactory infrastructure (Table V). In Hong Kong, about 90% of total passenger trips are on public transport (Census and Statistics Department, 2002). Consequently, it is not difficult to understand why the respondents laid heavy emphasis on public transport (Table IX). Furthermore, a good transport system may be defined as a well-established road network with a hierarchy of travel options that facilitates the smooth flow of traffic. Their opinions on pedestrian walkways and bike paths were relatively neutral. Bike paths and pedestrian walkways might be good in themselves and environmental-friendly but they were not practical in most urban areas of Hong Kong.

Lastly, it must be stated that development is for the people. Collecting the views and ideas of the public concerning their residential environment can contribute towards meeting the needs and aspirations of the community. It can also help to build a consensus as well as a trusting relationship between the Government and the community for the working out of a suitable form of development for Hong Kong. Nevertheless, it should be borne in mind that the opinions gathered are by no means permanent because perceptions often change over time. Constant updates should be undertaken to monitor the changing opinions of the public. Furthermore, the inflexibility of a standardized questionnaire, such as was used in this study for data collection, may limit the scope of the survey and fail to achieve a truly in-depth understanding of the perception of the respondents. However, this shortcoming may be overcome in future studies by the additional use of unstructured in-depth interviews.

NOTE

¹ The author would like to thank Ms. Ka Yee Ng and Ms. Kwan Yee Cheng for their assistance in field work. The author is also grateful to Mr. Fung Wai Lui and Ms. Wing Wa So for their assistance in data entry.

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DO DEMOGRAPHIC CHARACTERISTICS MAKE A DIFFERENCE TO BURNOUT AMONG HONG KONG SECONDARY SCHOOL TEACHERS?

(Accepted 28 June 2004)

ABSTRACT. This study aims to investigate the relationship between teachers' demographic variables and burnout in Hong Kong using the Maslach Burnout Inventory. It is found that when compared with the North American normative data, Hong Kong teachers scored in the average range of burnout in emotional exhaustion and personal accomplishment while they scored in the low range of burnout in depersonalization. Gender differences were found in all three burnout syndromes, and teachers who were younger, unmarried, without religious beliefs, less experienced, without finishing professional training and of junior rank were more consistently burned out. Whereas age was the strongest predictor for emotional exhaustion and depersonalization, teachers' rank is the best predictor for personal accomplishment. However, the effect of demographic characteristics of teachers on burnout is not that salient.

KEY WORDS: burnout, demographic, Hong Kong teachers, MBI

INTRODUCTION

Stress and burnout among teachers have been important concerns internationally in the past decades. Whereas professionals and researchers have different conceptualization of the phenomenon, Maslach and Jackson's (1981) multidimensional model is used most widely because of its detailed delineation of the content of burnout. In their model, burnout is viewed from three aspects, namely: (1) emotional exhaustion (feeling drained and tired), (2) depersonalization (treating students as if they are impersonal objects), and (3) lack of personal accomplishment (feeling inefficient, ineffective and inadequate). In short,

burnout is a condition in which teachers “lose all concerns, all emotional feeling, for the persons they work with and come to treat them in detached or even dehumanized ways” (Maslach, 1976, p.17).

In fact, Maslach and Jackson’s definition does not only concretely describe the situation a burned out person may experience, it is of high relevance to Hong Kong because one can easily find teachers showing cynical attitudes toward their students and complaining on the exhaustion feelings and the lack of achievement resulted from teaching. To study the burnout situation in Hong Kong secondary school teachers, the authors have adopted the Maslach Burnout Inventory (MBI), which has been used widely in investigating teachers’ burnout syndromes and consistently found to be a reliable instrument (e.g., Beck and Gargiulo, 1983; Anderson and Iwanicki, 1984; Sarros and Sarros, 1990; Lau and Yuen, 1991; Mo, 1991; Taris et al., 1999; Calvete and Villa, 2000; Dierendonck et al., 2001; Xu, 2003; Xu et al., 2004, etc.).

In previous studies on teacher stress and burnout, a great deal of attention has been paid to the influence of personal characteristics such as sex, age, length of teaching experience and post held in the school (Kyriacou and Sutcliffe, 1978; Halpin et al., 1982, 1985; Fontana and Abouserie, 1993; Hodge et al., 1994; Laughlin, 1984). In the study of Fontana and Abouserie (1993), it was found that 72.6% among the 95 teachers involved were experiencing moderate level of stress while 23.2% were experiencing serious stress level, though no significant difference was identified between male and female teachers. On the other hand, whereas Kyriacou and Sutcliffe (1979) found that male department heads and female teachers reported higher stress level, Payne and Furnham (1987) found that female teachers, less experienced teachers and teachers with lower qualifications reported greater stress than their colleagues. On the contrary, Borg et al. (1991) noted that male teachers reported greater stress than female teachers. In addition, McCormick and Solman (1992) found that the position held either as a classroom or executive teacher and gender were significant predictors of stress in their regression analysis.

Although no consistent relationships were established between biographic characteristics and stress level, Kyriacou (1987) emphasized that they are important factors related to sources of stress.

As for teacher burnout, Anderson and Iwanicki (1984) found that gender difference existed in all burnout syndromes. Male teachers scored significantly higher in emotional exhaustion, depersonalization and personal accomplishment. However, in the studies of burnout among human service professionals including teachers, nurses, social workers and the like, Maslach et al. (1996) reported that female staff showed higher emotional exhaustion than male colleagues. Interestingly, Russell et al. (1987) reported no significant difference between male and female teachers in personal accomplishment. In addition, Zhao and Bi (2003) found that there was no difference between the genders in the three burnout syndromes in a sample of 190 secondary school teachers in the Chinese Mainland.

Besides gender, age is a salient differentiating variable for emotional exhaustion (Byrne, 1999). Research showed that younger teachers scored significantly higher than older teachers (e.g., Anderson and Iwanicki, 1984; Maslach et al., 1996). However, controversial age effects were reported for depersonalization and reduced personal accomplishment. Maslach et al. (1996) found that younger human service professionals were more dehumanizing and showed significantly lower levels of personal accomplishment than their older colleagues. However, Anderson and Iwanicki (1984) reported no difference in age for these two burnout syndromes.

Marital status, students' ability, subjects taught, and grade level of students have also been identified as factors relating to teacher burnout in previous studies (e.g., Anderson and Iwanicki, 1984; Russell et al., 1987; Byrne, 1991; Hodge et al., 1994; De Heus and Diekstra, 1999). Russell et al. (1987) found that married elementary male teachers reported significantly higher scores in personal accomplishment. De Heus and Diekstra (1999) also found that married persons were less exhausted and depersonalizing than single persons. With regard to student abilities, Byrne (1991) found that teachers of

students in regular, academic mainstream reported significantly higher emotional exhaustion than teachers of vocational students. On the other hand, Hodge et al. (1994) found that music teachers experienced more burnout than mathematics teachers. In the study of Anderson and Iwanicki (1984), high school teachers were found to be more burned out than teachers from elementary schools.

In Hong Kong, Mo (1991) found that the burnout phenomenon was quite evident among secondary school teachers. Graduate teachers with less teaching experience, especially those with 5 years or below, showed higher level of burnout in the emotional exhaustion dimension. He further stated that teachers with Type A personality and those who had greater social support were less burned out.

Chan and Hui (1995) found that gender difference existed in the three burnout syndromes in a sample of 415 secondary school teachers in Hong Kong. School duty has also been identified as a factor relating to teachers' stress level. Hui and Chan (1996) found that the perceived stress level of guidance teachers was significantly higher than non-guidance teachers.

Table I summarizes the research findings of the relationship between teachers' demographic characteristics and burnout mentioned in this article. The results of the past researches were so varied or even contradictory that it deserves our attention to look further into the burnout phenomenon. Specifically, this study aims to examine the relationship between teachers' demographic characteristics and burnout in the local context, thereby helping to identify those who are at higher risks and devise appropriate means to help them cope better with the situation. In this study, three questions are raised in the attempt to find out the burnout situation among teachers in Hong Kong: (1) What is the level of different burnout syndromes of local secondary school teachers? (2) Is there a relationship between teachers' demographic variables (e.g., sex, age, marital status, religion, teaching experience, etc.) and burnout? (3) What is the best predictor from the demographic factors for each of the burnout syndromes?

TABLE I
 Research findings about the relationship between teachers' demographic characteristics with burnout quoted in this article

Demographic variables	Emotional exhaustion	Depersonalization	Personal accomplishment
Gender	Male > female (Anderson and Iwanicki, 1984) Female > male (Chan and Hui, 1995 ; Maslach et al, 1996) No gender difference (Russell, 1987)	Male > female (Anderson and Iwanicki, 1984; Chan and Hui, 1995)	Male > female (Anderson and Iwanicki, 1984; Chan and Hui, 1995) No gender difference (Russell, 1987)
Age	Younger > older (Anderson and Iwanicki, 1984; Chan and Hui, 1995)	Younger > older (Maslach et al., 1996)	Older > younger (Byrne, 1991; Maslach et al., 1996) Younger > older (De Heus and Diekstra, 1999) No age difference (Anderson and Iwanicki, 1984) Married male elementary school teachers reported higher score (Russell, 1987)
Marital status	Unmarried > married (De Heus and Diekstra, 1999)	Unmarried > married (De Heus and Diekstra, 1999)	
Student ability	Teachers in the main stream schools > teachers in vocational schools (Byrne, 1991)		
Subject taught	Music teachers experienced more burnout than mathematics teachers (Hodge et al., 1994)		

TABLE I
Continued

Demographic variables	Emotional exhaustion	Depersonalization	Personal accomplishment
Student grade level	Teachers of higher schools were more burned out than teachers from elementary schools (Anderson and Iwanicki, 1984)		
Teaching experience	Teachers with less experience were more burned out than teachers with more teaching experience (Mo, 1991)		

METHOD

Teachers from 45 secondary schools were invited to participate in this study. They were randomly selected according to their school types (31 aided grammar schools, three prevocational schools, seven private independent schools and four government schools). Altogether 2248 questionnaires were sent out. The respondents were asked to answer the questionnaire completely, seal it in an enclosed envelope and return it to the general office of the school. The questionnaires gathered by each school would then be collected either by the authors directly or sent back by mail. In total 1805 completed questionnaires were returned. Of these completed questionnaires, patternized answers were identified in eight of them. Data of these eight questionnaires were not included in the analysis. Thus, 1797 teachers constituted the sample of this study. The return rate was 79.94%.

Among the participants, 819 were men, 969 were women and nine did not indicate their gender. The age of participants ranged from 21 to 60. The mean age was 35.07 years with the standard deviation of 8.13. Their teaching experience ranged from 1 to 40 years. The mean teaching experience was 10.93 years with the standard deviation of 7.62. More than three quarters of the participants had finished professional training programs (77.91%). This teacher sample was heterogeneous in nature and the demographic characteristics of the subjects were similar to the teacher population of recent years (Hong Kong Education Department, 2001, 2002).

To investigate the relationship between teachers' demographic characteristics and burnout, the subjects were first asked to complete the Chinese version of the MBI and then supply their demographic information. The Chinese version of the MBI was translated from the 22-item version developed by Maslach and Jackson (1986), which had been used as a reference by Mo (1991) when he measured teacher burnout in the territory. Backward translation was adopted to ensure that the original meaning of each item was conveyed in this newly translated version. The subjects were asked to evaluate the

frequency of their perception of each item on a 7-point Likert scale ranging from 0 (never) to 6 (every day). In analyzing the data, factor analysis, reliability test, frequency check, analysis of variance and multiple regression were used.

RESULTS

MBI scores of Hong Kong Secondary School Teachers

In order to study the level of different burnout syndromes of Hong Kong secondary school teachers, the means and standard deviations of the three burnout syndromes were calculated. The results are shown in Table II. The mean scores for emotional exhaustion, depersonalization and personal accomplishment are 22.41 (SD = 10.18), 6.55 (SD = 5.46) and 33.26 (SD = 8.24), respectively.

According to Maslach et al. (1996), scores of the MBI subscales are considered high if they fall into the upper third portion of the normative distribution, average if they fall into the middle third and low if they fall into the lower third. Although the above cutting points are quite arbitrary, the authors still adopted these cutting points to make comparisons between teachers in Hong Kong and North America, considering three reasons that might cause bias. First, the timing for collecting the data from teachers of the two places was different. The recent burnout situation of Hong Kong secondary teachers was compared with data of American teachers collected more than 15 years ago. Second, Hong Kong data were collected by using a Chinese version of the MBI. Bias might have resulted by problems related to translation. Third, cultural factors, e.g., the view of teachers' role, might affect the perception of burnout for teachers of the two places. Nevertheless, the comparison is valuable because it might help generate insights into the burnout situation of Hong Kong secondary school teachers.

Using the method proposed by Maslach et al. (1996) for computing the cut-off points for the high, average and low range of the MBI subscales, the cut-off points for the Hong Kong data

TABLE II
Mean scores and standard deviations of the MBI subscales

Maslach Burnout Inventory	<i>n</i>	Number of items	Mean	SD
Emotional exhaustion	1713	9	22.41	10.18
Depersonalization	1727	5	6.55	5.46
Reduced personal accomplishment	1678	8	33.26	8.24

were then calculated. The results are presented in Table III. When comparing the three MBI scores of Hong Kong teachers with North American teachers, it is found that the ranges for emotional exhaustion and personal accomplishment scores of teachers from both places are similar to each other while the range of depersonalization scores of Hong Kong teachers is much lower than that of the American teachers.

TABLE III

Comparison of the categorization of MBI scores of Hong Kong secondary school teachers ($n = 1797$) with teachers of North America (Maslach et al., 1996) ($n = 4163$)

MBI subscales	Range of experienced burnout		
	Low (lower third)	Average (middle third)	High (upper third)
Hong Kong teachers (grades 7–13)			
EE	< 17	18–26	> 27
DP	< 3	4–7	> 8
PA	> 38	37–31	< 30
North American teachers (grades K–12)			
EE	< 16	17–26	> 27
DP	< 8	9–13	> 14
PA	> 37	36–31	< 30

Notes:

EE = Emotional Exhaustion.

DP = Depersonalization.

PA = Personal Accomplishment.

Teacher Burnout and Demographic Characteristics

The effects of demographic variables were examined to study their relationship with teacher burnout in Hong Kong by using multivariate analysis of variance. The demographic variables including the participants' gender, age, marital status, religious status, teaching experience, professional training background, main subject taught, student academic ability, rank, teaching class level and other duties in school were regarded as independent variables while the three burnout syndromes as dependent variables. With the use of Wilks' criterion, the combined measures of burnout were significantly related to gender [$F(5, 1412) = 20.89, p < 0.001$], age [$F(6, 2824) = 3.74, p < 0.01$], religious belief [$F(3, 1412) = 2.81, p < 0.05$], teaching language subjects [$F(3, 1412) = 3.05, p < 0.05$], student banding [$F(12, 3736) = 3.11, p < 0.001$], and teachers' duty [$F(6, 2824) = 3.61, p < 0.01$]. Further analyses based on univariate F -test were then carried out. Scheffe's test was conducted to examine group differences for those independent variables with two or more levels. The results are shown in Table IV.

Gender differences were found in all three burnout syndromes. Female teachers were significantly more burned-out in emotional exhaustion and personal accomplishment but were less depersonalizing than male teachers.

Age was found to be another demographic variable that was related to burnout. Younger teachers tended to show greater burnout syndromes than their older colleagues. According to Scheffe's procedure ($p < 0.05$), teachers at the age of 30 or younger were more burned out than those at the age of more than 31 and teachers at the age of 31–40 also showed greater burnout syndrome than those at the age of more than 41.

Furthermore, teachers who were unmarried, without religious belief, less experienced, without finishing professional training, and with junior rank were found consistently more burned-out in all three burnout syndromes. Regarding students' academic ability, one might anticipate that teachers teaching students with low ability would experience more

TABLE IV
ANOVA of the MBI subscales by the demographic variables of Hong Kong secondary school teachers

Variables	N	Emotional exhaustion			Depersonalization			Personal accomplishment		
		M	SD	F	M	SD	F	M	SD	F
Sex										
Male	819	21.62	10.72	8.25**	7.12	5.82	16.27***	34.05	8.45	12.98***
Female	969	23.03	9.61		6.06	5.06		32.60	8.02	
Age										
30 and below	598	24.37	9.70	26.69***	7.54	5.44	21.06***	32.08	7.81	10.88***
31-40	682	22.48	9.85		6.29	5.33		33.77	8.06	
41 and above	408	19.53	10.76		5.31	5.24		34.45	9.07	
Marital status										
Single	740	23.47	9.95	7.81***	7.13	5.50	7.46**	32.24	8.18	9.55***
Married	1029	21.69	10.28		6.15	5.40		33.96	8.21	
Religious status										
With religious belief	886	22.07	9.75	1.46	6.22	5.17	5.43*	33.84	7.91	7.76**
Without religious belief	899	22.67	10.54		6.83	5.65		32.72	8.50	
Teaching experience										
5 years and less	514	24.16	9.91	13.43***	7.48	5.59	20.45***	32.06	7.66	11.52***
6-10	514	22.46	9.86		6.98	5.41		33.10	8.30	
11 and more	730	21.08	10.42		5.57	5.22		34.38	8.51	
Professional training status										
Trained	1400	21.84	10.12	9.73***	6.18	5.30	15.10***	33.73	8.24	8.72***
Being trained	151	25.35	10.37		8.31	5.86		31.59	8.36	
Not trained yet	236	23.51	9.83		7.57	5.72		31.79	7.85	

TABLE IV
Continued

Variables	Emotional exhaustion			Depersonalization			Personal accomplishment			
	N	M	SD	F	M	SD	F	M	SD	F
Subjects taught										
Language teachers	743	22.77	10.38	1.65	6.15	5.39	5.66*	33.30	8.25	.01
Other teachers	1033	22.13	10.04		6.79	5.44		33.26	8.26	
Student banding										
Band 1	158	21.31	9.95	2.45*	5.50	4.98	5.47***	33.58	8.79	2.72*
Band 2	448	21.57	9.99		6.00	5.16		33.51	8.26	
Band 3	515	22.92	9.63		6.47	5.26		32.92	8.14	
Band 4	212	23.82	10.94		7.17	5.66		31.85	8.60	
Band 5	443	22.34	10.52		7.35	5.96		34.04	7.87	
Teachers' rank										
Junior (CM, GM)	1272	23.18	10.24	24.95***	7.04	5.56	33.39***	32.63	8.02	24.58***
Senior (AM, SAM, PAM, SGM, PGM)	496	20.44	9.74		5.36	5.00		34.85	8.59	
Teaching class level										
S.1-S.3	704	22.75	10.14	1.88	6.63	5.48	1.64	33.63	7.89	1.09
S.4-S.5	724	22.58	10.26		6.73	5.54		33.01	8.34	
S.6-S.7	352	21.48	9.98		6.09	5.20		33.06	8.73	
Teachers' duty										
Discipline teachers	260	21.48	10.04	1.08	6.44	5.65	1.33	34.53	8.06	6.24**
Guidance teachers	310	22.05	10.12		6.06	5.30		34.29	7.80	
Others	1141	22.49	10.14		6.62	5.42		32.87	8.35	

Notes: N = Number of subjects, M = Mean, SD = Standard deviation, F = F-value, * $p < 0.05$ **, $p < 0.01$ ***, $p < 0.001$

burnout. The results were in line with this anticipation. Teachers teaching students with higher academic ability were generally found to be less burned-out, but it was interesting that teachers teaching students with the lowest academic ability (band 5) scored the highest in personal accomplishment. This implied that teachers might have more satisfaction in teaching these band-5 students. Regarding subjects taught by teachers, language teachers showed no significant difference in emotional exhaustion and personal accomplishment from other teachers but they were less burned-out in depersonalization. With respect to teachers' other duties taken in the school, discipline and guidance teachers scored higher in personal accomplishment than other teachers. In addition, no significant difference was found in all three burnout syndromes among teachers teaching different levels.

To further study the relationship between each of the burnout syndromes with teachers' demographic characteristics, multiple regression analysis was conducted with the MBI subscales as dependent variables and teachers' demographic characteristics as independent variables. Since the correlation between two demographic variables, teachers' age and teaching experience, was 0.90 at 0.001 significant level, only teachers' age was put in the list of the independent variables in the regression analysis. Table V presents the results of the multiple regression analysis of each of the burnout syndromes by teachers' demographic characteristics.

Among the demographic variables, age was the significant predictor for emotional exhaustion. Specifically, younger teachers reported stronger exhaustion feelings. For depersonalization, gender, age, religious status, students' banding and training status were significant predictors. Male teachers who were younger, without religious belief, teaching students of lower ability and of junior rank reported more frequent cynical behaviors to students. For personal accomplishment, gender, religious status, training status and teachers' rank were significant predictors. Trained male teachers with religious belief and of senior rank showed more frequent appreciation of their personal achievement in teaching.

TABLE V
Beta coefficients of the demographic variables to emotional exhaustion, depersonalization and personal accomplishment

Demographic variables	Emotional exhaustion	Depersonalization	Personal accomplishment
Sex	0.04	-0.13***	-0.07**
Age	-0.17***	-0.13***	0.04
Marital status	0.01	-0.02	0.05
Religious status	-0.04	-0.05*	0.08**
Training status	-0.03	-0.05	0.06*
Student banding	0.03	0.08**	0.03
Teachers' rank	-0.03	-0.06*	0.06*
R^2	0.04	0.06	0.04
F	10.29***	14.81***	8.26***

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The results also revealed that the influence of demographic variables on each of the burnout syndromes was not that dominant. Only 4, 6 and 4% of the total variance of emotional exhaustion, depersonalization and personal accomplishment could be explained, respectively. From these findings, it seems that demographic characteristics are not very influential factors affecting burnout of Hong Kong secondary school teachers.

DISCUSSION

The Burnout Situation of Hong Kong Secondary School Teachers

When comparing the mean scores of the present study with the normative data of the teaching professionals of the North America (Maslach et al., 1996), it was found that Hong Kong secondary school teachers scored in the average range of burnout in emotional exhaustion and personal accomplishment while they scored in the low range of burnout in depersonalization. This implies that relatively average emotional exhaustion and personal accomplishment and low depersonalization were experienced by Hong Kong teachers. These findings coincide with the findings of Chan and Hui (1995).

What is interesting, however, is that we always find teachers in Hong Kong showing dehumanizing behavior toward their students. Why is the score of depersonalization of Hong Kong teachers much lower than that of the North American teachers? Are Hong Kong teachers really more human than American teachers? We do not have an exact answer to these questions but we may gain some insights into this phenomenon when we trace the development of the Chinese culture.

Traditionally the role of teachers in the Chinese culture is to care for their students with severity. This notion can be found in the deep-rooted Confucian beliefs. "The Three Character" says, "To feed the body, not the mind – fathers, on you the blame! Instruction without severity, the idle teachers' shame" (養不教，父之過；教不嚴，師之惰) (Pang, 1999, p. 20). There is another famous Chinese saying, "At the back of the high-achieving students, there are severe teachers" (嚴師出高徒).

Therefore, “good teachers” in the Chinese context may be expected, to a certain extent, to have high expectation on their students by being severe and controlling. In this regard, they may not be aware that their attitude toward the students is sometimes cynical and indifferent. On the contrary, some teachers may show their care for their students by being dehumanizing. Among the depersonalization items of the MBI, teachers are asked to check the frequency they showed depersonalizing attitude toward their students. Chinese teachers may have a tendency to check the lower frequencies for they think being strict means they are caring for their students.

Besides, there may be social or structural reasons in schools that contribute to the low scores of depersonalization of Hong Kong secondary school teachers. For example, the number of students in each class is higher in Hong Kong than that in the western society. Therefore teachers may be impatient when dealing with problems with big classes and become cynical and indifferent. Thus, further research can study how Chinese teachers perceive depersonalization. A qualitative approach can be used to investigate the underlining reasons behind it.

Demographic Differences of Teacher Burnout

Gender differences

Previous studies on gender differences of burnout have yielded inconsistent findings except for the depersonalization burnout syndrome. In many western studies, it was found that depersonalization appeared to be higher for male teachers than female teachers from elementary to secondary school level (Anderson and Iwanicki, 1984; Burke and Greenglass, 1989; Greenglass and Burke, 1990; Oigus et al., 1990; Byrne, 1991, 1999; Cordes and Dougherty, 1993; Maslach, 1993; Maslach et al., 1996; De Heus and Diekstra, 1999). The results of the current study provide evidence to support the phenomenon that male teachers show more depersonalizing behavior toward their students in secondary schools in Hong Kong. Gender is a strong predictor for depersonalization. The gender difference of depersonalization among teachers seems to be common across different cultures.

As for emotional exhaustion, it was found that female teachers reported greater burnout than male teachers among elementary and university educators (Byrne, 1991, 1999). On the other hand, Anderson and Iwanicki (1984) reported that the reverse was true while no significant gender differences were found in emotional exhaustion in other studies (Maslach and Jackson, 1986; Russell et al., 1987; Mills and Heubner, 1998). The results of the present study support the findings of Byrne (1991, 1999) that female teachers reported higher emotional exhaustion than male teachers.

For the dimension of personal accomplishment, significantly stronger feelings of the lack of personal accomplishment were reported by female high school teachers (Anderson and Iwanicki, 1984), university educators (Byrne, 1991) and human service professionals in general (Maslach and Jackson, 1981) while no significant gender differences were reported for elementary and secondary school teachers (Schwab and Iwanicki, 1982; Russell et al., 1987). In the present study, female teachers have reported more experience of reduced personal accomplishment than male teachers in Hong Kong secondary schools. This serves as an evidence to support the findings of Anderson and Iwanicki (1984), Byrne (1991), and Maslach and Jackson (1981).

In sum, gender differences of each of the three burnout dimensions were found among teachers in Hong Kong secondary schools. Male teachers reported more depersonalization while female teachers experienced more emotional exhaustion and reduced personal accomplishment.

Age differences

Significant age differences of each of the burnout dimensions were found in the present study. In the literature, although age has been identified as a very salient differentiating variable with respect to the emotional exhaustion component of burnout (Byrne, 1999), investigations of age differences of depersonalization and reduced personal accomplishment have yielded inconsistent findings. For emotional exhaustion, younger teachers have reported significantly higher emotional

exhaustion than older teachers (Maslach and Jackson, 1981; Schwab and Iwanicki, 1982; Anderson and Iwanicki, 1984; Russell et al., 1987). The same age difference of emotional exhaustion was also found among university professors (Byrne, 1991). The findings of the present study are in line with these studies – that older teachers have reported less emotional exhaustion in their teaching life in Hong Kong secondary schools. Significant age effects for emotional exhaustion ($p < 0.001$) indicated higher level of emotional exhaustion in the youngest group (mean = 24.37) than in the middle (mean = 22.48) and oldest (mean = 19.53) age groups (see Table IV).

For depersonalization, Maslach and Jackson (1981) and Pierce and Molloy (1990) reported significant lower depersonalization scores for their older respondents; De Heus and Diekstra (1999) found the reverse among 1018 Dutch teachers, while Byrne (1991), Anderson and Iwanicki (1984) and Schwab and Iwanicki (1982) found no significant age differences with respect to this dimension of burnout.

For personal accomplishment, Maslach and Jackson (1981) reported significant lower personal accomplishment scores among younger respondents than older ones, and Byrne (1991) reported similar findings for elementary and university teachers. However, De Heus and Diekstra (1999) reported a reverse age difference in personal accomplishment among the Dutch teachers while Anderson and Iwanicki (1984) and Schwab and Iwanicki (1982) found no significant age differences with respect to this dimension of burnout. Perhaps, there may be social and contextual factors contributing to the different findings and further research is needed to investigate this phenomenon.

In line with the findings of Maslach and Jackson (1981) and Pierce and Molloy (1990), the results of the present study indicated that teachers of the youngest age group showed significant ($p < 0.001$) higher depersonalization scores (mean = 7.54) than the middle (mean = 6.29) and the oldest (mean = 5.31) age groups and significant ($p < 0.001$) lower personal accomplishment scores (mean = 32.08) than the middle (mean = 33.77) and oldest (mean = 34.45) age groups. Age is a strong predictor for both emotional exhaustion and

depersonalization. As far as the three burnout symptoms are concerned, teaching in Hong Kong secondary schools seems to be harder for the young teachers. These findings have implications for teacher educators and school administrators. Teacher educators may design courses and programs to train their teacher-students to combat burnout, especially in their early teaching life. To help these novice teachers to adapt to the teaching profession and face burnout, school administrators should organize induction programmes that include stress management skills to help the younger teachers. Moreover, they may implement the mentor system, in which mentors (senior teachers) who have training and knowledge in mental health can guide the mentees. Further, the school should carefully allocate jobs to new teachers so that they can take up responsibilities more progressively.

Other demographic differences

The results of the present study indicated that teachers who were married, with more teaching experience, with professional teacher education qualifications and had been promoted to senior positions in schools were found to be consistently less burned-out in the three burnout dimensions. In addition, teachers with religious belief expressed significantly greater scores in personal accomplishment. Besides, no significant findings were reported in the three burnout dimensions among teachers teaching different grade levels.

Some interesting observations related to teachers' subject taught, students' academic ability and teachers' duties

It is often said that language teachers (teachers who are teaching Chinese Language or English Language) in Hong Kong are more stressed than non-language teachers because of the heavy marking workload and the complicated curriculums. Nonetheless, the results of the present study showed no significant differences in all burnout syndromes between language teachers and non-language teachers. One possible explanation is that the workload of both language and

non-language teachers has increased in recent years, so much so that there is no significant difference between the two groups.

Students' academic ability was another factor investigated in previous studies. Byrne (1999) pointed out that certain types of students may require extra attention, discipline and/or special care and it seems reasonable to believe that teaching these students may generate high levels of stress and frustration for teachers. However, inconsistent findings were found in the work of Bensky et al. (1980), who found that teachers of students from regular classes reported higher burnout than teachers of students with learning disabilities.

In Hong Kong, the academic ability of student was classified into five bandings, with band 1 being the best and band 5 being the lowest. This 5-banding system has been changed to a 3-banding system starting from September 2001. As the data of the present study were collected before September 2001, the 5-banding system was therefore adopted. In the present study, although the scores showed an increase in emotional exhaustion and a decrease in personal accomplishment in teachers of band 1 to band 4 schools, no significant differences were found in burnout syndromes in the ANOVA with Scheffe's post hoc procedures. Quite contrarily, teachers of band-5 schools scored the highest in personal accomplishment. Lower academic ability in students, therefore, did not seem to be a factor affecting teachers' burnout in emotional exhaustion and personal accomplishment in Hong Kong. On the other hand, significant differences for depersonalization ($p < 0.001$) were found among teachers teaching students of different bandings. Follow-up Scheffe's procedure indicated that teachers teaching band-5 students showed significantly higher depersonalization than those teaching band 1 and band-2 students. This finding implies that teacher-pupil relationship may be better in band-1 and band-2 schools than in band-5 schools, where more conflicts between teachers and students result in higher depersonalization of teachers.

Regarding the relationship between teacher duty and burnout, Chan and Hui (1995) found that guidance teachers in Hong Kong experience less burnout than non-guidance teachers though they

are expected to do additional guidance work. This study extends the comparison between guidance and non-guidance teachers to comparison among discipline, guidance and other teachers.

As discipline teachers in Hong Kong are often expected to shoulder the heavy workload of dealing with the discipline problems of students, it is interesting to study if they experience higher level of burnout when compared with guidance and other teachers. In the present study, no significant differences were found among discipline, guidance and other teachers with respect to emotional exhaustion and depersonalization, but there were significant differences in personal accomplishment. According to Scheffe's procedure, it was found that in line with the findings of Chan and Hui (1995), guidance teachers felt that they were able to work more effectively with students than other teachers. For discipline teachers, they did not report higher burnout than other teachers though they were expected to deal with students' discipline problems. On the contrary, the results of Scheffe's procedure indicated that discipline teachers, similar to guidance teachers, reported significantly greater personal accomplishment scores than other teachers. However, there was no significant difference found between discipline and guidance teachers.

In sum, teaching language subjects does not seem to be a salient factor of teacher burnout while teaching students with lower academic ability is related to greater burnout in depersonalization. Besides, teachers responsible for either students' discipline or guidance work reported greater sense of achievement in the personal accomplishment dimension of burnout than other teachers.

Concluding Remark

The study found that the distribution of the burnout scores of Hong Kong secondary school teachers is similar to that of the North American teachers in emotional exhaustion and personal accomplishment, though Hong Kong teachers score much lower in depersonalization. Cultural difference may be one of the explanations to this phenomenon. Further, relationships were found between the demographic variables and burnout.

Male teachers tend to be more depersonalizing to their students, though they experience less exhaustion and more accomplishment than their female counterparts. The data also implied that teachers who are younger in age, not married, with less teaching experience, without finishing teacher training programme, teaching students of lower academic ability and junior in teachers' rank tend to experience all three syndromes of burnout more. Whereas age seems to be the strongest predictor for emotional exhaustion and depersonalization, teachers' rank is the best predictor for personal accomplishment.

In conclusion, do demographic characteristics make a difference to burnout among the secondary school teachers in Hong Kong? According to the findings of the present study, the answer is "yes." However, the low percentages of total variance explained imply that although certain background characteristics of teachers are significant correlates, their effects for each of the teacher burnout syndromes may not be that salient. Perhaps in addition to the demographic characteristics covered in this study, future research can investigate whether other factors like teachers' income or total number of working hours have an impact on teacher burnout in Hong Kong.

ACKNOWLEDGEMENTS

The article is based on Patrick S. Y. Lau's PhD thesis completed at the Chinese University of Hong Kong. The research is partially supported by the Direct Grant, The Chinese University of Hong Kong.

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NOTES

- ¹ There are two types of teachers in Hong Kong, namely graduate teachers and certificate teachers. The former refers to those with a bachelor's degree whereas the latter refers to those who do not but have a teacher certificate.
- ² In Hong Kong, government schools, aided grammar schools and pre-vocational schools receive funding from the government. Whereas government schools are managed totally by the government, the other two are run by other organizing bodies like the Church or other charitable organizations.

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RELATIONS BETWEEN SOCIAL PROBLEM SOLVING
AND INDICATORS OF INTERPERSONAL AND
FAMILY WELL-BEING AMONG CHINESE
ADOLESCENTS IN HONG KONG

(Accepted 27 August 2004)

ABSTRACT. This study evaluated the dimensionality of the construct of social problem solving and examined the relationships between social problem solving and empathy, emotional well-being and family well-being in a sample of secondary school students in Hong Kong ($N = 1462$). The participants completed measures of social problem solving (the 25-item short form of the Chinese version of the Social Problem-Solving Inventory: C-SPSI-R), empathy (the Chinese Interpersonal Reactivity Scale), emotional well-being (the Chinese Vengeance Scale) and family well-being (the Chinese Family Assessment Instrument and the Conflict Behaviour Questionnaire). Regarding the dimensionality of the C-SPSI, confirmatory factor analysis showed that the scale has a stable five-factor structure ($RMSEA = 0.05$) and that the related subscales were reliable (with α ranging from 0.65 to 0.81). Participants with higher levels of social problem solving had higher levels of empathy and lower personal distress in applying empathy, which suggested that these personal competencies were inter-related. Higher levels of social problem solving were also related to better emotional well-being (less tendency to take revenge) and better family quality of life (better family functioning and fewer parent-adolescent conflicts).

KEY WORDS: emotional well-being, empathy, family functioning, indicators of quality of life, social problem solving

INTRODUCTION

Social problem solving is the cognitive-affective-behavioural process by which people attempt to resolve problems they experience in real-life social environments (D’Zurilla et al., 1996). Theoretically speaking, the traditional information-

processing model defined problem solving as a series of cognitive skills in problem identification, goal setting, finding suitable solutions and evaluating problem-solving outcomes, but largely ignored the motivational, affective and behavioural aspects of problem solving (e.g., Logan, 1989). The social problem-solving model proposed by D’Zurilla and Nezu (1990), however, represents a major update of the traditional information-processing model of problem solving. Effective problem solving is postulated to be dependent on a positive orientation towards problem solving (problem orientation) and the effective application of rational problem-solving skills. Social problem solving becomes ineffective when it is dominated by a negative attitude towards problem solving, impulsiveness and acting out behaviour, or extreme delay and avoidance. With reference to the concept of quality of life in which different dimensions such as productive well-being (e.g., competence and productivity) are proposed (Felce and Perry, 1995; Wallander et al., 2001), social problem-solving as a form of personal competence can be regarded as an indicator of quality of life.

How is social problem solving related to other forms of personal competence and indicators of quality of life? At a fundamental level, one can ask how social problem solving as a form of personal competence is related to other forms of personal competence such as interpersonal competence. In particular, it is theoretically interesting to ask if a person who has strong social problem-solving competence would have a higher ability to understand others’ perspectives (i.e., empathy). Social problem solving could be enhanced by perspective taking ability, which is a cognitive component of empathy. In his model of interpersonal reactivity, Davis (1996) suggested that empathy is promoted by the ability to fantasize and demoted by the personal distress resulting from understanding others. It would also be of interest to examine if the ability to fantasize and personal distress would promote and demote social problem solving as well.

In child and adolescent research, social problem solving and empathy are both commonly regarded as favourable

outcomes of child development (Moore et al., 2001). Social problem-solving training is a critical element in programmes for promoting the quality of social relationships (Shure, 1997) and the management of anger and aggressive behaviour (Frey et al., 2000) among children and adolescents. More recent programmes have combined empathy and social problem-solving training in promoting social competence and in the prevention of aggression (Frey et al., 2000).

Besides the linkage between social problem solving and empathy, it is also important to ask how social problem solving as a form of personal competence is related to emotional well-being. A wealth of studies have shown that social problem-solving ability can moderate the impact of life stress on well-being and social adjustment in adults (e.g., Dubow et al., 1991; D’Zurilla and Sheedy, 1991; Goodman et al., 1995). Research has also shown that social problem solving can help children and adolescents to manage stress (Elias et al., 1986) and prevent or manage depression (Frye and Goodman, 2000). However, there have to date been no studies that have examined the linkage between social problem solving and an individual’s tendency to revenge. From an emotional point of view, failure to “forgive” (i.e., tendency to seek revenge) is an indicator of poor emotional well-being. People with a strong need for retaliation are often controlled by their own emotions and become emotionally enmeshed with the “offender” (Hershey, 1984). Forgiveness could set them free from enmeshment with the offender through “letting go” of their resentment (Benson, 1992). The struggle between forgiveness and vengeance is a common issue in the family context, and in fact, many family therapists regard forgiveness as the “soul” of family mediation (Cloke, 1993). From this review, it is hypothesized that an increase in social problem solving would be associated with a decrease in emotional well-being as indexed by vengeance.

Finally, it would be interesting to ask how social problem solving as a form of personal competence is related to the quality of family life. In family research, problem-solving skills training has long been identified as an effective intervention for managing parent–child relationship and conflicts (Robin and

Foster, 1984; Guevremont and Foster, 1993). Social problem solving is regarded as an important individual resource in the re-negotiation of family resources, parent-child interpersonal boundaries and mutual expectations (Emery, 1992). Unfortunately, despite the potential contribution of social problem solving to parenting and family functioning, only a few studies have closely examined the relationship between individual social problem solving and indicators of family quality of life such as family functioning and parent-child relational qualities (Kennedy et al., 1988). Some initial evidence showed that aggression among adolescents is related to differences in social problem-solving strategies between parents and adolescents (Jaffe and D'Zurilla, 2003), and that social problem solving is an important resource for families experiencing the stress of caring for a disabled child (Goldberg, 1998).

Although problem-solving training is widely recognized as an important intervention for parent-adolescent conflicts in literature, there are very few studies on the role of social problem solving in the family dynamics of Chinese populations. From the existing literature, it is evident that there are several major reasons why social problem-solving skills are not emphasized in Chinese families. First, while Chinese people uphold the Confucian ideal of maintaining interpersonal harmony, they tend to ignore family practices (such as communication and problem solving) that lead to harmonious outcomes (Shek and Chan, 1998). Second, the most important norms in negotiating conflicts for Chinese people are emotional control, the maintenance of standards of politeness and the avoidance of aggressive persuasion techniques (Shenkar and Ronen, 1987). As a result, Chinese people are much more motivated to use avoidance, compromise and tolerance when handling conflicts, rather than applying the problem-solving strategies of conflict management (Kirkbride et al., 1991; Allison, 1997). Third, the hierarchical nature of Chinese families could be a major barrier to the application of problem-solving skills in family relationships. Chinese children are often expected to respect and listen to their parents' advice (and not to talk back) rather than solve problems together with their parents (Graber

et al., 1996). Having conflicts with one's parents is socially unacceptable, as is making one's parents lose face ("mianzi", Ting-Toomey, 1988). Due to these social norms and attitudes, individual social problem-solving abilities are not strongly encouraged in Chinese culture.

Based on the social problem-solving model of D'Zurilla (1986), the Social Problem-Solving Inventory (SPSI) is one of the most widely used self-report measures of social problem solving. The first version of the SPSI had 70 items and its reliability and validity were demonstrated in a series of validation studies using clinical and non-clinical samples (D'Zurilla, 1986). Based on a detailed evaluation of the factor structure of the SPSI (Maydeu-Olivares and D'Zurilla, 1995, 1996), the 70-item SPSI was revised to the 52-item Social Problem-Solving Inventory Revised (SPSI-R) in 1996.

The 52-item SPSI-R has five subscales which measure Positive Problem Orientation (PPO), Negative Problem Orientation (NPO), Rational Problem Solving (RPS), Avoidance Style (AS) and Impulsiveness/Carelessness Style (ICS). The PPO subscale assesses the orientation towards constructive problem solving, such as the disposition to appraise a problem as a challenge, optimism that problems could be solved, a belief in one's ability to solve problems successfully and a willingness to commit to solving problems. The NPO subscale assesses motivational factors that inhibit problem solving, such as the general tendency to view a problem as a threat, pessimism about one's ability to solve problems, and the tendency to easily become frustrated and upset when confronted with problems. The RPS subscale assesses the degree to which the person systematically applies rational, effective problem-solving principles and strategies. The ICS subscale evaluates a deficient problem-solving pattern characterized by active attempts to solve problems which are narrow, impulsive, careless, hurried and incomplete. The final subscale, the AS subscale, assesses another defective problem-solving pattern characterized by procrastination, passivity, inaction or dependency. For each of the 52 items, respondents are requested to choose an answer on a five-point Likert scale that offers a range of answers from

“Not at all true of me” to “Extremely true of me”. Half of the test items indicate a constructive orientation towards problem solving, while the other half indicate a dysfunctional or inhibitive orientation. The items are presented in random order. Some findings recounted in the literature support the psychometric properties of the scale (Heppner and Peterson, 1982; D’Zurilla et al., 1996).

Siu (2003) translated the SPSI-R into Chinese and conducted studies on the psychometric properties of the full and short forms of the C-SPSI. Based on a sample of 352 adolescents and young adults, Siu and Shek (in press-a) reported that both the full and short forms of the C-SPSI-R had a five-factor structure that was largely consistent with the structure of the original English SPSI-R. The C-SPSI-R subscales were found to be internally consistent and temporally stable over time. Subjects with and without clinical depression had differences in four out of the five subscales of the C-SPSI-R (all subscales except the RPS subscale), a finding which provided support for the discriminant validity of the instrument. Based on the results of content validity and exploratory factor analysis, a 25-item short form of the C-SPSI-R was developed. Exploratory factor analysis of the short form replicated a stable five-factor structure of the full version which maintained a high level of internal consistency and test-retest reliability. However, while the pilot study by Siu and Shek (in press-a) provided some initial validation data, there is a need to further verify the factor structure of the C-SPSI-R short form via confirmatory factor analysis.

This study attempted to address the following research questions. Question 1: Does the C-SPSI-R demonstrate good psychometric properties? Is the factor structure consistent with the five dimensions of the C-SPSI-R proposed by the theory (Maydeu-Olivares and D’Zurilla, 1995, 1996) and the findings of the exploratory factor analyses of Siu and Shek (in press-a)? Question 2: What is the relationship between social problem solving and empathy, both of which can be regarded as indicators of quality of life (i.e., interpersonal competencies)? It was hypothesized that a higher level of social problem solving would be related to a higher level of empathy. Question 3: What

is the relationship between social problem solving and emotional well-being indexed by vengeance? It was hypothesized that a lower level of social problem solving would be related to a lower level of vengeance. Question 4: What is the relationship between social problem solving and family well-being indexed by family functioning and parent-adolescent conflict? Based on the family ecological models (Belsky, 1984; Bronfenbrenner, 1986), it was predicted that a higher level of social problem solving would be related to higher levels of family well-being (i.e., higher family functioning but lower parent-adolescent conflict).

METHOD

Study Participants

A convenient sample of 1462 participants was recruited from 11 high schools in Hong Kong. The age of the participants ranged from 11 to 17, with a mean of 13.78 ($SD = 1.13$). There were 864 females (59.5%) and 589 males (40.5%) in the sample. Among the participants, 492 (33.8%) were Grade 7 students, 411 (28.3%) were Grade 8 students and 551 (37.9%) were Grade 9 students. Most of the participants (87.7%) were born in Hong Kong while 10.2% were born in Mainland China. Around half (54%) of the participants lived with one sibling, 21% lived with two siblings and 16.6% did not live with any siblings. Only 123 (8.5%) participants did not live with their fathers and only 34 (2.3%) did not live with their mothers. The main reasons why the participants did not live with their parents were that their parents were divorced or working in other countries.

Instruments

The Chinese Social Problem-Solving Inventory Revised (C-SPSI-R) Short Form

The 25-item C-SPSI-R short form was translated and developed from the 52-item SPSI-R (D'Zurilla et al., 1996). Exploratory factor analysis revealed that the 25-item C-SPSI-R has a five-factor structure which has good psychometric prop-

erties (Siu and Shek, in press-a). Table I shows the grouping of items from the exploratory factor analysis. For the positive subscales of PPO and RPS, a high score indicates high problem-solving skills, while a high score on the NPO, ICS and AS subscales indicates low problem-solving skills. Following the guidelines of D’Zurilla et al. (1996), a C-SPSI-R total score was calculated by adding the scores of the positive subscales (the

TABLE I
Composition of the 25-item short form of the C-SPSI-R

Scale	Items ^a
AS	15 (AS): avoid thinking about problems 18 (AS): spend more time avoiding solving problems 9 (AS): put off trying to solve problems as long as possible 11 (AS): go out of my way to avoid dealing with problems 17 (AS): put off solving problems until it’s too late 10 (ICS): do not take time to evaluate all results carefully
NPO	8 (NPO): frustrated if first attempt to solve problem fails 3 (NPO): nervous and unsure when making important decisions 12 (NPO): a difficult problem makes me upset 1 (NPO): feel afraid when I have a problem to solve 22 (NPO): become depressed and immobilized
RPS	16 (RPS): examine how mood is better after change 25 (RPS): keep in mind the goal 21 (RPS): weigh and compare the consequences of each option 24 (RPS): use systematic method for comparing alternatives 20 (RPS): evaluate if the situation has changed for the better
ICS	14 (ICS): go with first good idea that comes to mind 5 (ICS): act on the first idea that comes to mind 19 (ICS): do not take time to consider pros and cons of options 23 (ICS): go with my ‘gut feeling’ without thinking
PPO	7 (RPS): analyze the situation and identify obstacles 2 (RPS): think of different solutions 6 (PPO): believe a problem can be solved 13 (PPO): deal with problems as soon as possible 4 (PPO): do not give up trying to solve problems when first attempt fails

Note: ^aThe factor to which the item belongs in the original SPSI-R is shown in brackets, where AS = Avoidance Style, NPO = Negative Problem Orientation, RPS = Rational Problem Solving, ICS = Impulsiveness/Carelessness Style and PPO = Positive Problem Orientation.

PPO and RPS subscales) and the reverse scores of the negative subscales (the AS, NPO and ICS subscales).

The Chinese Interpersonal Reactivity Index (C-IRI)

The Interpersonal Reactivity Index (IRI) was designed to measure the key interpersonal and intrapersonal outcomes of an empathic response (Davis, 1996). Based on the IRI, Siu (2003) developed a 21-item Chinese version of the Interpersonal Reactivity Index (C-IRI) which has three subscales of Empathy (E), Fantasy (F) and Personal Distress (PD). Validation studies showed that the test–retest reliability ($r = 0.61$ to 0.81) and the internal consistency ($\alpha = 0.70$ to 0.75) were good. Siu and Shek (in press-b) showed that the Chinese version of the IRI possessed good psychometric properties.

The Chinese Vengeance Scale (C-VS)

The 19-item C-VS, translated and developed from the Vengeance Scale (Stuckless and Goranson, 1992), measures “attitude towards revenge”. Siu (2003) showed that the scale had a unidimensional factor structure, high test–retest reliability ($r = 0.90$) and high internal consistency ($\alpha = 0.90$). In this study, vengeance was regarded as an indicator of emotional quality of life.

Chinese Family Assessment Instrument (C-FAI)

The C-FAI is one of the first generic instruments developed to measure family functioning in Chinese populations (Shek, 2002). The 33-item C-FAI has five subscales of mutuality, communication, conflict and harmony, parental concern, and parental control. A higher score in the subscales indicates less favourable functioning (i.e., a higher level of dysfunction). In a series of validation studies, the C-FAI was found to have high internal consistency ($\alpha > 0.90$) and high test–retest reliability ($r > 0.84$), and its scores were able to discriminate clinical samples participating in family interventions from non-clinical samples.

Conflict Behavior Checklist (CBQ-20)

The Child version of the CBQ-20 is used to measure the perceived level of conflict and negative communication between

participants and their parents (Foster and Robin, 1989). Shek (1997, 1998) showed that the Chinese version of the CBQ-20 had good psychometric properties.

Procedures

After obtaining the consent of the schools, data were collected from classes randomly selected from each school. The students participated in the study on a voluntary basis. Those who declined to join the study were allowed to do their own reading or revision. The researcher or assistant briefed the teachers and students on the purpose of the research, and was present throughout the test administration process to answer queries. All the research participants completed a questionnaire which included the 25-item C-SPSI-R, the 21-item C-IRI, the 19-item C-VS, the 33-item C-FAI and the 20-item Child version of the CBQ, and provided basic background information such as gender, age and family structure.

RESULTS

Confirmatory Factor Analysis of the C-SPSI-R Short Form

Confirmatory factor analyses were performed using EQS 6.1 to examine the dimensionality of the C-SPSI-R. The researchers attempted to fit two models, a five-factor model obtained from a pilot study ($N = 352$) of the C-SPSI-R short form (Siu and Shek, in press-a), as well as an alternative five-factor hierarchical model (i.e., one secondary factor and five primary factors). The results showed that the five-factor model (GFI = 0.93, AGFI = 0.92, RMSEA = 0.05 and CFI = 0.90; see Table II) has a much better fit to the data than the hierarchical five-factor model (GFI = 0.90, AGFI = 0.88, RMSEA = 0.09 and CFI = 0.81). All the fitted path estimates of the five-factor model (Figure 1) were significant, ranging from 0.48 to 0.75.

While different indicators have been proposed to interpret the goodness-of-fit of findings from confirmatory factor

TABLE II

Goodness-of-fit indices and internal consistency for the five-factor, hierarchical five-factor and four-factor models of the C-SPSI-R when fitted across three samples

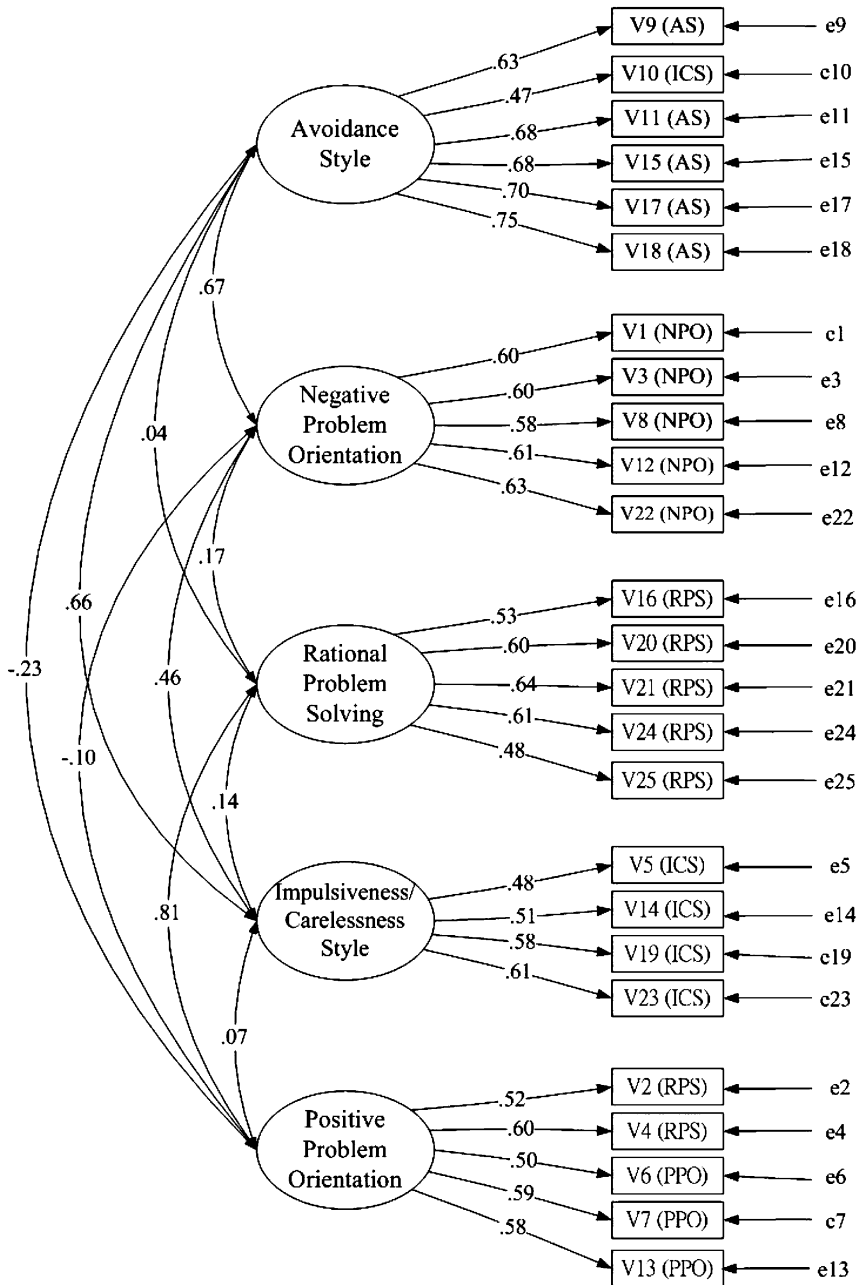
Model	Fit Indices							α
	χ^2	df	GFI	AGFI	CFI	RMR	RMSEA	
Five-factor	1150.12	265	0.93	0.92	0.90	0.07	0.05	0.80
Hierarchical five-factor	1844.76	270	0.90	0.88	0.81	0.11	0.09	0.80
Four-factor	1331.71	269	0.92	0.90	0.87	0.08	0.05	0.80

Note: Maximum likelihood estimation was used. GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, CFI = comparative fit index, RMR = root mean square residual, RMSEA = root mean square error of approximation and α = Cronbach's alpha.

analyses, root mean square of approximation (RMSEA) is regarded as the most informative indicator in structural equation modelling (Browne and Cudeck, 1993; MacCallum et al., 1996; Byrne, 1998). The values of RMSEA can be interpreted in the following manner: 0 = perfect fit; less than 0.05 = a close fit; 0.05 to 0.08 = a fair fit; 0.08 to 0.10 = a mediocre fit; more than 0.10 = a poor fit.

With reference to Figure 1, the NPO, RPS and ICS subscales only contain items that are theoretically related to them. The AS subscale contains five AS items and one ICS item, and the PPO subscale contains three PPO items and two RPS items. The C-SPSI-R subscales demonstrated good internal consistency, with α ranging from 0.65 to 0.80 ($\alpha = 0.81$ for AS, 0.73 for NPO, 0.69 for RPS, 0.65 for ICS and 0.68 for PPO).

As there was a high correlation between the PPO and RPS subscales ($r = 0.81$) and there were two RPS items in the PPO subscale, the researchers attempted a post-hoc fitting by combining the RPS and PPO subscales. The fit statistics of the five-factor model were still slightly better than those of the four-factor model (GFI = 0.92, AGFI = 0.90, RMSEA = 0.05 and CFI = 0.87). The path estimates of the four-factor model



ranged from 0.43 to 0.74, which was slightly lower than that for the five-factor model. In short, the findings of the confirmatory



Figure 1. Path diagram and estimated parameter loadings for the five-factor model of the C-SPSI-R. Latent variables are indicated by ovals and observed variables are indicated by rectangles. V1 to V25 in the observed variables refer to the 25 items of the C-SPSI-R. A list of brief item descriptions can be found in Table I.

factor analyses suggested that the five-factor model is an adequate model for describing the dimensionality of the C-SPSI-R.

Relationship between Social Problem Solving and Other Indicators of Quality of Life

The C-SPSI-R total score had a moderate correlation with the E ($r = 0.45$) and PD ($r = 0.44$) subscales of the C-IRI, but did not correlate with the F subscale (Table III). The correlations with the subscales were also in the expected directions, as the E subscale had positive correlations with the RPS ($r = 0.33$) and PPO ($r = 0.36$) subscales, and negative correlations with the AS ($r = -0.33$), NPO ($r = -0.14$) and ICS ($r = -0.20$) subscales. The PD subscale of the C-IRI, which is a measure of distress associated with attempts to apply empathy, had positive correlations with the AS ($r = 0.32$), NPO ($r = 0.52$) and ICS ($r = 0.13$) subscales, and negative correlations with the RPS ($r = -0.11$) and PPO ($r = -0.23$) subscales.

Regarding the linkage between social problem solving and emotional well-being, the results in Table III show that the Vengeance Scale (VS) had positive correlations with the AS ($r = 0.31$), NPO ($r = 0.15$) and ICS ($r = 0.24$) subscales, and a negative correlation with the PPO ($r = 0.15$) subscale. The C-SPSI-R total score also had a moderate negative correlation with the VS score ($r = -0.44$). Basically, the findings are consistent with the expectation that a higher level of social problem solving would be related to a lower level of vengeance.

Concerning the linkage between social problem solving and family well-being, the C-SPSI-R total score had negative correlations with all the five subscales of the C-FAI. A closer examination of the correlation coefficients showed that the AS subscale had significant negative correlations with all the five

TABLE III
Correlation coefficients between the five subscales of the C-SPSI-R short form and measures of interpersonal and family well-being

Instrument	Subscale	C-SPSI-R short form						Total
		AS	NPO	RPS	ICS	PPO		
<i>Empathy</i> C-IRI	Empathy	-0.33*	-0.14*	0.33*	-0.20*	0.36*	-0.45*	
	Fantasy	0.07	0.16*	0.11*	0.05	0.06	0.05	
	Personal distress	0.32*	0.52*	-0.11*	0.13*	-0.23*	-0.44*	
Emotional well-being VS	Vengeance	0.31*	0.15*	-0.05	0.24*	-0.15*	-0.30*	
	Mutuality	0.28*	0.18*	-0.11*	0.09*	-0.19*	-0.29*	
Family well-being C-FAI	Communication	0.26*	0.19*	-0.12*	0.07	-0.21*	-0.29*	
	Conflict and harmony	0.31*	0.16*	-0.04	0.14*	-0.16*	-0.28*	
	Parental concern	0.27*	0.12*	-0.07	0.16*	-0.15*	-0.26*	
	Parental control	0.22*	0.16*	-0.03	0.15*	-0.12*	-0.24*	
	Conflict with mother	0.30*	0.19*	-0.08	0.14*	-0.16*	-0.30*	
CBQ	Conflict with father	0.28*	0.20*	-0.04	0.15*	-0.12*	-0.27*	

Note: AS = Avoidance Style, RPS = Rational Problem Solving, NPO = Negative Problem Orientation, ICS = Impulsiveness/Carelessness Style, and PPO = Positive Problem Orientation. A two-tailed multistage Bonferroni procedure was used to obtain the data. *p*FW is based on the family-wise Type 1 error rate.
**p*FW < 0.05.

subscales of the C-FAI. This indicated that the use of avoidance strategies is associated with a decrease in family functioning indexed by the different subscales of the C-FAI. The NPO subscale had low positive correlations with all the C-FAI subscales, which indicated that family functioning decreases with an increase in negative problem orientation. The PPO subscale had significant negative correlations (r ranging from -0.12 to -0.21) with all five C-FAI subscales, indicating that an increase in positive problem orientation is associated with an increase in the five aspects of family functioning.

The C-SPSI-R total score also had significant correlations with the CBQ ($r = -0.30$ for mother and -0.28 for father). Four out of the five C-SPSI-R subscales had significant correlations with the CBQ. The RPS subscale was the only subscale which did not correlate with the level of parent-child conflict measured by the CBQ.

DISCUSSION

Psychometric Properties of the C-SPSI-R

The results of the confirmatory factor analyses suggested a five-factor model of social problem solving that is largely consistent with previous findings based on the English version of the SPSI-R (Maydeu-Olivares and D'Zurilla, 1995, 1996) and the findings based on a previous validation study (Siu and Shek, in press-a). Three of the five factors, the NPO, RPS and ICS subscales, contained only items that were theoretically related to them. The AS subscale contained five AS items and one ICS item (item 10). On a closer examination of the meaning of item 10 ("do not take time to evaluate all results carefully"), this item could reflect the use of avoidance strategy as well as impulsiveness/carelessness strategy in problem solving. On the whole, the grouping of items under the C-SPSI-R subscales was largely the same as in the original SPSI-R and in a previous study in Hong Kong (Siu and Shek, in press-a). The consistent factor structure across cultures and different samples provides support for the social problem-solving theory.

In the study of factorial structure, confirmatory factor analysis suggested that the PPO and RPS subscales could perhaps be combined. This is supported by a high correlation between the PPO and RPS subscales, and by the fact that the goodness-of-fit of the five-factor model is only slightly better than that of the four-factor model (with the PPO and RPS subscales combined). An alternative explanation is that the meaning of the two RPS items in the PPO subscale, item 2 (“try to think of different solutions”) and item 4 (“analyze the situation and identify obstacles”), could be perceived as a positive orientation towards problem solving in addition to a kind of rational problem-solving skill. Furthermore, the PPO and RPS subscales had rather different correlations with measures of individual and family functioning, which supports the notion that they are different constructs. While the PPO subscale significantly correlated with nearly all seven measures of family functioning (C-FAI) and parent-child conflict (CBQ), the RPS subscale only correlated with two C-FAI subscales (mutuality and communication).

Social Problem Solving and Indicators of Well-Being

The C-SPSI-R subscales were correlated with measures of empathic response (C-IRI) and attitude towards revenge (VS), the strength and directions of the correlations were largely consistent with theoretical postulations. For instance, empathy had significant positive correlations with the PPO and RPS subscales, and significant negative correlations with the negative subscales of AS, NPO and ICS. The findings were also consistent with the expectation that personal distress (i.e., the reaction to the emotional distress of others) had positive correlations with the AS, NPO and ICS subscales, and negative correlations with the RPS and PPO subscales.

It is also worth noting that the attitude towards revenge significantly correlated with all the C-SPSI-R subscales except the RPS subscale. This implies that the attitude towards revenge is dependent on motivational aspects (positive and

negative problem orientation) and behavioural styles of problem solving, but largely independent from the level of rational problem-solving skills. A person with high rational problem-solving skills could still have high vengeance, if he is not motivated to face the interpersonal problem at hand.

Finally, the findings provide support for the hypothesis that social problem solving is positively related to family well-being. The negative problem-solving subscales of AS, NPO and ICS had negative relationships with indicators of family well-being, while the positive subscales of PPO and RPS had positive relationships with family well-being. Among the five C-SPSI-R subscales, avoidance strategies (the AS subscale) had the strongest relationship with measures of family functioning, followed by negative and positive problem orientation, and impulsiveness/carelessness style. These results are consistent with those of previous studies regarding the importance of avoidance strategies in the functioning of Chinese families. In addition, the correlations between the C-SPSI-R scores and measures of interpersonal and family functioning were generally in the expected directions and of the expected strength, which provides support for the construct validity of the C-SPSI-R.

Contributions of the Study

The contributions of the present study can be discussed in terms of three aspects: the contributions to the measurement of social problem solving, to the clinical assessment of social problem solving, and to the exploration of the linkages between social problem solving and individual or interpersonal quality of life. First, the study of the psychometric properties of the C-SPSI-R provides important evidence in support of the construct validity of the C-SPSI-R. The findings suggest that the dimensionality of the C-SPSI-R is relatively stable across cultures, as the five dimensions measured by the SPSI-R could be replicated in the Chinese short form of the scale. The relationship between the C-SPSI-R and measures of interpersonal and family functioning is generally consistent with theoretical postulations, which

supports the adoption of the C-SPSI-R in family and adolescent research.

Second, the present study makes a practical contribution by enabling clinicians and researchers to assess social problem solving in an objective manner in the context of Chinese culture. The psychometric evidence from this study supports the use of the C-SPSI-R short form in screening social problem-solving tendencies among adolescents. Using the C-SPSI-R as a quick screening instrument, clinicians can obtain a profile of the motivational, cognitive and behavioural tendencies of a client to solve problems. This enables clinicians to understand the positive and negative influences on the social problem-solving abilities of individuals. Furthermore, this study has collected the social problem-solving profiles of a large sample of Chinese adolescents, which provides a reference for the interpretation of the assessment results using the C-SPSI-R.

The study also contributes to the clarification of linkages between: (a) social problem solving and empathy; (b) social problem solving and vengeance; and (c) social problem solving and family well-being. First, the results underscore the theoretical importance of the role of social problem solving in individual well-being. The linkages between social problem solving and indicators of individual well-being, empathy and vengeance were all in the expected directions and of the expected strength. This confirms the role of social problem solving in individual well being. Social problem solving is closely linked to empathy, and both constructs are commonly regarded as favourable outcomes of child development. Two negative behavioural styles of social problem solving, avoidance and impulsiveness/carelessness, are closely linked to vengeance (an indicator of emotional well-being). Second, in view of the severe lack of empirical research findings on the linkage between social problem solving and family well-being, the present study provides support for the relationship between social problem solving and measures of family well-being indexed by family functioning and parent-adolescent conflict.

Limitations of the Study

Although the present study clarifies the relationships between social problem solving and different indicators of quality of life, it has several limitations. First, while the study uses a large sample, the sample was recruited using convenient sampling instead of random sampling because of issues of consent from different schools. The sample was also recruited from a limited band of age groups, so the present results may mainly be applicable to young people in early adolescence. Second, although the present study examined the construct validity of the C-SPSI-R, it should be noted that the C-SPSI-R assesses social problem-solving tendencies through a self-report format instead of actual social problem-solving performance. There is a need to further investigate how the agreement between the C-SPSI-R and measures of social problem-solving performance, and how the actual performance may be related to quality of life constructs. Thirdly, the study only assessed the social problem-solving abilities of adolescents, but not those of their parents. In studying the relationship between social problem solving and family quality of life, a more ideal approach would be to measure the social problem solving of both parents and children. Lastly, the study was not able to establish causal relationships among the key constructs because of its cross-sectional nature. Despite these limitations, the present findings are interesting and pioneering additions to the literature on well-being and quality of life in Chinese societies.

ACKNOWLEDGEMENTS

We would like to thank Prof. T.J. D’Zurilla for giving us permission to develop a Chinese version of the Social Problem-Solving Inventory Revised.

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