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12-1-2004

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Cheung Ming, Alfred CHAN  
*Lingnan University, Hong Kong*

Sheung Tak CHENG  
*City University of Hong Kong*

David Rosser PHILLIPS  
*Lingnan University, Hong Kong*

Iris CHI  
*University of Hong Kong*

S. Y., Suzanne HO  
*Chinese University of Hong Kong*

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### Recommended Citation

Chan, A. C. M., Cheng, S.-T., Phillips, D. R., Chi, I., & Ho, S. S. Y. (2004). Constructing a Quality of Life Scale for Older Chinese People in Hong Kong (HKQoLOCP). *Social Indicators Research*, 69(3), 279-301. doi: 10.1007/s11205-004-4516-1

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ALFRED C. M. CHAN, SHEUNG-TAK CHENG, DAVID R PHILLIPS, IRIS CHI and

SUZANNE S. Y. HO

## **CONSTRUCTING A QUALITY OF LIFE SCALE FOR OLDER CHINESE PEOPLE IN HONG KONG (HKQoLOCP)**

Keywords: Quality of Life; Measurements; Scale; Well-Being; Health; Chinese Older  
Persons; Hong Kong

**ABSTRACT.** This paper reports a multi-stage study carried out between 1999 and 2001 which aimed to develop an instrument to address the need for a culturally relevant measure of quality of life for Chinese older persons in Hong Kong and similar communities. The first stage of the research involved a focus group study conducted in August 1999 which it was hoped would reflect how ‘quality of life’ may be interpreted by older persons themselves. The next stage, a content analysis of the focus groups, enabled the construction of a questionnaire containing over 100 items on various aspects of quality of life (QoL). The questionnaire was reviewed by a panel of experts and the items were refined and reduced to 86 to which were added a further 25 items for socio-demographic background. This formed the initial instrument. The final stage was a

validation study based on a representative community survey, with a sample of 3,000 respondents drawn for the research team by the Census and Statistics Department of the Hong Kong Special Administrative Region (HKSAR) Government. The survey yielded 1,616 successful interviews with older persons aged 60 or above.

The careful stratification of the sample enabled us to say that subjects in all the stages of the survey had broadly similar characteristics to the general Hong Kong elderly population in sex and age distribution. After a rigorous process of validation, the research team recommended the adoption of both an index and six domains for measuring Hong Kong older persons' QoL. The new scale contains a total of 21 items which can be grouped into various domains: subjective well-being, with 4 items; health with 5 items; interpersonal relationships with 6 items; achievement–recognition with 4 items, finance and living conditions (1 item each). The overall QoL scale has a Cronbach's alpha of 0.72 with its domains ranging from 0.65 to 0.77 which indicates a high degree of statistical reliabilities. The name recommended for the scale was 'Hong Kong Quality of Life for Older Persons Scale' – abbreviated as 'HKQoLOCP'.

## BACKGROUND TO THE STUDY

For a number of years the World Health Organization (WHO) has been attempting to clarify the concept of Quality of Life. In 1993, the WHO defined QoL as 'individuals'

perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns' (WHOQOL Group, 1994). This definition recognized that QoL extends beyond health and should incorporate an individual's appraisal of at least the following domains: physical health including mobility, psychological well-being, social and interpersonal relationships, environmental conditions and spiritual commitment. This breadth of QoL has been recognized as existing beyond quality of health (Ogburn, 1929; Bradburn, 1961; Bauer, 1966; WHOQOL Group, 1994; Grogono and Woodgate, 1971; Najman and Levine, 1981; Schipper and Levitt, 1985; Ferrel et al, 1995; Bowling, 1997). Lam et al (2002) have noted that health-related QoL as measured by the SF-36 is an important influence on health service utilization in a Chinese community in Hong Kong. The WHO Quality of Life Study Group (WHOQOL Group) has developed both full (100-item) and short (26-item) protocols for the participating field centres in a QoL research project incorporating over 20 partner centres in a worldwide team. In 1996, the Hong Kong Hospital Authority became one of the WHO's QoL field centers and was joined by Lingnan University, Hong Kong, in 1999 and a Chinese QoL scale version initially developed was based on younger age patient groups (below age 60) and has been criticized for its applicability in community samples (Lam, 2000). In addition, the WHOQOL Group recommends their instruments for a profile application – that different

domains should be used instead of using a composite score (i.e. an overall index) for QoL.

The present study aimed to develop a measurement capable of application of both its domains and an overall index in samples of older persons living in the community, which is where the majority of older people do and will live.

### KEY ISSUES ADDRESSED

Although certain standardized measures are available for measuring QoL, such instruments are not generally focused on the specific needs and situations of elderly persons or are not in a language format that Chinese older persons, who often have little or no education, can readily understand. Hence, the Hong Kong research team felt it important to develop a bespoke instrument for measuring QoL of elderly people and to conduct a bench-marking survey to collect information for the compilation of an index of QoL for older persons living in the community. The major areas included various aspects of well-being: physical (such as health conditions and mobility), psychological aspects (such as a sense of happiness, satisfaction), economic aspects (such as financial disposition), social interaction (such as social roles and interpersonal relationships), and environment (such as home and locality environment). How these factors contribute to a sense of well-being among older persons and their relative importance would provide a valuable insight into the needs and aspirations of this important and growing group of

people who currently comprise some 12% of Hong Kong's population (aged 65+).

## SIGNIFICANCE AND OBJECTIVES OF THE STUDY

As for all age groups, older people's quality of life is multidimensional and includes and traverses such areas as physical and mental health, spiritual faith, social integration, normative behavior, and environmental and material affordability (Coons and Mace, 1996; Grayson and Young, 1995; Norcross, 1990; Seed and Kayser, 1994). To assess adequately the quality of life among older people, an approach to include their views and use of language is essential, as what Chinese elders value in their quality of life may be different to what those from a different cultural background might value (Lau et al, 1998). As a whole, developing an index specifically for older persons in the community is both an important tool for policy and practice. The index also developed an initial step toward benchmarking the quality of life of elderly people living in the community in Hong Kong. Furthermore, the development of the instrument for assessing older people's quality of life can enable comparison across elderly cohorts in different districts and countries. The team also hoped that a carefully-constructed and validated QoL scale in Chinese could be widely used both within the Asia-Pacific region and amongst older Chinese communities in many other parts of the world.

## FROM A WORLD QOL MEASUREMENT TO THE HKQOLOPS

Quality of life was first formally studied as a social indicator by Ogburn and colleagues in the Harvard Research Centre as long ago as the 1930s (Ogburn, 1929) when people began to realize that solely economic indicators do not always show people's real livelihood or states of well-being. Under Ogburn's leadership, the Harvard centre established two research mainstreams of social indicators: one for general social indicators and the other one for quality of life. The streams were further refined and delineated in the 1960s to cover essentially objective issues such as fertility and mortality rates, income and public expenditure and education levels and employment rates, and subjective aspects referred to as the quality of life (Bradburn, 1961; Bauer, 1966). The study of QoL continued in the 1970s, with its main focus on inter-country or locality differences. Coupled with the medical profession's search for more expressive outcome indicators than the (widespread) use of purely survival rates, this became a popular area for medical outcomes in the 1980s, leading to the development of concepts such as health-related QoL, Adjusted QoL years (see Hayes et al, 1993; Mosteller, 1987; Bowling, 1997). Research then tended to shift to a more individual level, looking mainly at how individuals perceive and react to external circumstances. Measures include happiness or well-being (Aaronson, 1989; Heady and Wearing, 1989; 1992; Veenhoven, 1991; 1994; Carver and Scheier, 1990); a feeling of fineness (Andrews, 1976); a current state of life

satisfaction (Grib, 1985); being released from social confines (Holmes, 1960); satisfaction with daily living (Dubos, 1976); an overall adaptation to life (Levi and Anderson, 1975); and the ability to manage daily living activities (Fayos and Beland, 1981). It became increasingly recognized that the concept of QoL is multi-dimensional, exists in reality, but is difficult to comprehend and assess (Aaronson, 1989).

During the 1990s, QoL became an increasingly important focus for health related research. Internationally, the WHO has standardized version contains 100 items, representing 6 domains 24 facets (4 items in each facet) and 4 global items - WHOQOL-100. For convenience, a shorter version was developed by taking the most correlated item from each facet (24 items) and by adding 2 global items (evaluation on quality of life and health satisfaction), giving a total of 26 items grouped into 6 domains. A number of other scales have also been developed for various purposes. The five-volume *Compendium of Quality of Life Instruments* edited by Salek (1999) contains over 100 scales currently used in different countries. As noted, the WHOQOL Chinese version has been partially validated in Hong Kong with younger-age patient groups (Leung et al., 1997) and has one of the largest data sets. Whilst its application for older Chinese community samples is questionable (Lam, 2000), it provides a reference for similar scales. Alongside these local efforts, sporadic efforts to apply different versions of QoL measurement for different purposes have been gaining momentum in recent years



(for example, Lam et al, 1998; Lam, 1999; Cheng, 1988; Wan, 1992; Tsang, 1996; Chan, 1996; Lu, 1996; Cheung, 1997; Leung et al, 1997; Lau et al, 1998). Nonetheless, despite the relatively small variations in their content, this research tradition has typically relied on an interviewer-administered questionnaire to measure the individual's subjective evaluation of the various domains of QoL. In addition, recent methodological advances have argued for the necessity of incorporating target respondents' views in developing indigenous cultural relevant measurements (Fielding et al, 2000). The current team's work for a QoL measurement also follows this philosophy.

## METHODOLOGY

The initial development of the HKQoLOP was predicated on the principle that, if questions are adopted from existing Western questionnaires, they may not make sense within the level of socio-economic development of, or to older persons in the Hong Kong community (Phillips, 1999). Even where they appear to fit, comparability may be defeated by poor or inadequate translation and questions (or answers) may not have the same meaning across cultures even when careful translation has been employed. This may be particularly the case in exploring the perceived health status of respondents. Therefore, focus groups consisting exclusively of older people themselves were first conducted to review the perceived meanings of QoL, as much as possible in their own

words, in their own style and in their defined context.

## THE FOCUS GROUPS

Four focus groups (FGs) were initially recruited through Hong Kong's extensive network of multi-service centres for the elderly (MEs). The FGs were broadly categorized as (1) working-class young-old, (2) working-class older-old, (3) middle-class young old, and (4) middle-class older-old. The young-old were aged between 65 and 74 years, the older-old, 75 or above. Middle-class referred to those living in privately owned housing, having a monthly income of HK\$15,000 (US\$1,900) or above and having attained at least some secondary education. Working-class older persons referred to those older persons not meeting any of these three criteria. Recruits were all able-bodied older persons from the centres or users of home-helpers based in the MEs. A fifth additional focus group was conducted due to 'non-exhaustive' responses from one of the groups (working class, 75+).

Each FG followed a comprehensive discussion guide on older people's quality of life. Derived from various theories and perspectives relevant to quality of life including the Chinese version of WHOQOL-100, these discussion guide covered these key issues (1) What do you think quality of life is? (2) Among the following life domains (such as health, political life), what importantly show that you have a good quality of life (or may be regarded as reaching a high level of quality of life? What exactly are they? Could you

cite examples? (3) How would you rank the importance of these life domains and for what reasons? (4) Doing what in life do you think importantly shows that you have a good quality of life (for example, voluntary work, community involvement)? Could you give examples? (5) How do you rank the importance of the above life domains and why? (6) If you feel you have a good quality of life, what (characteristics) will be manifested in your life (such as happiness, relaxation)? (7) How do you rank the importance of the above life domains and for what reasons?

Based on the responses, the research team constructed 116 close-ended questions with a 5-point Likert response format which was then screened by the expert group (comprising the research team members plus medical, nursing and senior government policy consultants). The five-point scale (1-5) was used for purposes of providing a real mid-point anchor and for operational convenience. The mid-point ( point 3) was a real anchor of respondent's feeling (not simply a central tendency) as found in the pilot questionnaire and in the other studies involved with perceptual domains. For differentiation of different levels of feelings using a Likert format, 5 points are usually considered for offering the best fit description and this is so for the present cohort on a continuum of anchors from 1=not very much, 2=not much, 3=alright, 4=-much and 5=very much.

The initial 116 questions were reduced to 108 and ultimately to 86 core items following a further three expert panel discussions (see Note below for availability of the survey instrument). The deletion of items was based on their meanings being covered in retained questions. The 86 items covered all essential domains of QoL, namely, physical health, psychological well-being, activity and independent ability, social and interpersonal aspects, environment and living conditions, and religion or spiritual aspects.

It was noted that the older persons took 'life quality' (a rather literary term in Chinese) principally to mean 'life satisfaction', 'happiness' or 'a good life'. These meanings reflect the composition and background of the present cohort, many of whom have very low levels of literacy (common in this age group throughout Hong Kong and most of the Chinese areas of the Asia-Pacific). They generally imbued the term with positive meanings. The content coverage of the items retained was more or less comparable to those for elderly people from other cultural backgrounds but they differed somewhat in language presentation. A key issue was the use of more colloquial Cantonese for the present cohort who were mainly Cantonese speaking. Cantonese is a dialect of Chinese, widely spoken in Hong Kong, Southeast China and in many other Chinese communities in the region. Being very colloquially based, it often has colourful words and phrases that are difficult to translate into other languages and are even difficult to render in literal written Chinese characters. Many respondents placed a typically Cantonese emphasis on

different life facets ( the Hong Kong sample especially placed a Cantonese emphasis on eating and family relationships). As evident in the survey findings, eating in particular was correlated highly with all domains: 0.24 for achievement-recognition, 0.25 for living condition, 0.30 for finance, 0.35 for interpersonal relationship, 0.49 with subjective well-being and 0.58 with health (Pearson  $r$ , all  $p < 0.000$ , between item (2)'do you think you eat well?' and respective domain scores).

## THE SURVEY

The next stage was a representative survey employing 1,616 successful interviews with people aged 60+ living in the community, a 74% response rate overall. This was drawn from the Hong Kong General Household Survey. Of the sample, 49.3% of respondents were male and 50.7% were female, with ages ranging from 60 to 99 (mean = 70.64, SD = 7.12). Approximately one-third were illiterate (34.6%), 44.5% had reached primary school standard, and 20.9% attained secondary school or above, fairly typical proportions for this age group in Hong Kong today. 60.9% were married while 32.3% were widowed. 82.3% lived with their family while 17.7% lived alone. Just under 12% (11.7%) were still working. Just under one-third (29.6%) had a household income below HK\$3,999 per month (US\$513). This elderly sample relied considerably on their family members for income (82.9%), and 61.2% were receiving Old Age Allowance. In terms of

health, the most common complaints were arthritic problems including rheumatism (31.2%); hypertension (27.2%); fractures (24.1%), diabetes (12.3%), various forms of eye diseases (11%) and heart diseases (10%). On average, this elderly cohort had 1.4 (SD = 1.4) chronic illnesses. Again, these percentages are very close to the typical health status of community-dwelling older persons in Hong Kong at this time (Leung and Lo, 1997; Leung, 2000).

To ensure data reliability, only those items which had a response rate over 94% (i.e. not more than 5% missing or respondents unwilling to answer or stating they did not understand) were analysed fully, which meant that 39 items remained. However, two key items on filial piety (item (b71) ‘are you respected by young people?’ and item (b75) ‘Are your children filial to you?’) were nonetheless included for their theoretical importance even though their response rates fell just below 95%. The 41 items were grouped into appropriate domains and subjected to psychometric tests (item-domain correlation, reliability alpha if item deleted, domain-total correlation, alpha if item (domain) deleted). The procedure adopted for data analysis and construction of psychometric scales was similar to that described in Anastasi (1988), a classic approach to psychological testing.

The tests eliminated a total of 20 items. In general, high level and abstract concepts (such as item (b12) ‘Do you think Hong Kong public policy is fair?’; item (b86) ‘Do you understand how to live happily?’) did not converge to any reliable scale, nor did they have

any significant correlation with the key domains identified. The analyses indicated that 21 items should be retained, forming 6 domains (subjective well-being, health, interpersonal relations, achievement-recognition, finance and living condition), for the present HKQoLOPs.

### HKQOLOP SCALE, DOMAINS AND ITEMS (FACETS)

The newly constructed Hong Kong Quality of Life for Older Person Scale (HKQoLOP scale) contains 21 items representing 13 facets, and could be categorized into 6 domains. The items of the scale are presented in Table I and the domains and facets in Tables II and III respectively.

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Insert Table I, II and III about here

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The adoption of the scale was based on rigorous statistical tests on the selected items and domains for their ability to form a reliable and valid scale. The tests used were Cronbach's alpha for scale or subscale (domain) reliabilities, Pearson's correlations for item-total correlations, and exploratory factor analysis (principal components analysis) to explore the factors of the QoL.

## RELIABILITY

### *a. Domains subscales reliability*

Subjective well-being, health, interpersonal relation and achievement-recognition subscales all had acceptable reliabilities of 0.77, 0.65, 0.77 and 0.72 (all alpha) respectively. Finance and environment were single items hence no reliabilities were computed.

### *b. Reliabilities: Full Scale*

The scale is composed of the six domains and the sum of the domain scores makes up the composite scale score. The overall reliability was 0.72 alpha. Item-total correlation also revealed that no single item (domain) was too highly or too lowly correlated with the total construct (corrected item-total correlation ranged from 0.31 to 0.71). A higher alpha could be obtained by deleting 'living condition' (0.7219). However, the item has been retained, since the improvement was small (0.0069) and the item covers an important domain. Considering the scale has incorporated fairly diversified domains, these figures appear very acceptable.

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Insert Table IV about here

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## CORRELATIONS: FULL SCALE AND DOMAINS, BETWEEN DOMAINS, ITEM AND DOMAIN

Domains within a scale should obviously correlate with the scale, likewise items within a domain (i.e. item-domain) should also correlate with each other. Between-domain correlations may vary and, in general, they should have a close relationship with each other, as they are proposed as being within the same construct. The scale was represented by adding up the six domain means. Likewise, domain scores were calculated by adding the corresponding items' means. Item-item correlation within a domain (i.e. inter-items correlation) would also be expected to be significant.

### *a. Correlation: Scale composite score and domains, between domains*

The six domains were significantly correlated with the QoL composite score, with the weakest at 0.56 (living condition) and the strongest at 0.82 (subjective well-being). Between-domains correlation were as expected. However, there was little (but significant) correlation between achievement-recognition and living condition; which may be understood as whether one lives comfortably or not might not be strongly related to whether one feels any achievement-recognition.

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Insert Table V about here

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*b. Correlations: Item-domain*

All items correlated well with their corresponding domains ranging from 0.15 to 0.86 (Pearson's  $r$ ).

#### CONVERGENT AND DISCRIMINANT ANALYSIS OF THE COMPOSITE SCORE

For a scale to be valid, it should converge with an instrument measuring similar constructs, and should discriminate from those which are different. The composite QoL mean score was used to correlate with two items which were supposed to have similar constructs (i.e.  $r = 0.40$  with (a1) 'Are you now having a high quality of life?',  $r = 0.42$  with (a2) 'Do you laugh a lot?'), and with another two which were expected to correlate moderately (i.e.  $r = 0.24$  with (b1) 'Do you join in group activities a lot?',  $r = 0.24$  with (b2) 'Do you concern yourself with important social matters?'), and with another two which should not correlate at all (i.e.  $r = 0.05$  with (c1) 'Do you have a lot of responsibility in family?',  $r = 0.05$  with (c2) 'Do you demand a lot from others?' (see Table VI).

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Insert Table VI about here

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## REGRESSION ANALYSIS

### (SUBJECTIVE WELL BEING AS A DEPENDENT VARIABLE)

The importance of subjective well-being to other domains was ascertained by multiple regression and the results showed that all the domains accounted for 54% of subjective well-being. Interpersonal relations carried the largest unique effect on subjective well-being, followed by finance and health, and then achievement-recognition and living conditions. (See Table VII).

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Insert Table VI about here

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## EXPLORATORY FACTOR ANALYSIS

Principal Component Analysis (PCA) was performed on the six domains. One previously unrecognized factor (i.e. the component extracted) was found which the research team labeled 'Quality of Life'. The factor is represented by the following mathematical equation: (factor loadings in brackets): Quality of Life = (0.865) Subjective well-being + (0.663) Health + (0.737) Interpersonal relations + (0.535)

Achievement-recognition + (0.639) Finance + (0.483) Living conditions. As expected, quality of life was most highly loaded on subjective well-being, followed by interpersonal relations, health, finance, achievement-recognition and living condition. The regression also indicated that the six domains could converge to form an overall index.

#### STABILITY: TEST RETEST RELIABILITY

The stability of the composite scale and domain subscales were tested using correlation between the first and second scores over four weeks. The results were: composite QoL, 0.74 (Pearson's  $r$ ,  $p < 0.001$ ), subjective well-being 0.69 (Pearson's  $r$ ,  $p < 0.001$ ), health 0.59 (Pearson's  $r$ ,  $p < 0.001$ ), interpersonal relations 0.68 (Pearson's  $r$ ,  $p < 0.001$ ), achievement-recognition 0.68 (Pearson's  $r$ ,  $p < 0.001$ ), finance 0.69 (Gamma,  $p < 0.001$ ) and living conditions 0.67 (Gamma,  $p < 0.001$ ). All were acceptable.

#### THE HKQoLOP SCALE: ESTIMATED POPULATION MEANS (RANGE), DOMAINS AND SCALE STANDARDIZED MEAN SCORE AND DISTRIBUTION OF SCORES (0-100)

Having validated the scale, it is possible to provide estimates for population means.

However, it should be noted that these mean scores are by not necessarily an accurate indication of 'good' or 'bad' quality of life, tempting though it is to interpret them as such,

because there is not any reference point for this for the elderly population in Hong Kong.

Thus, a *relative* index of 0-100 was constructed under the following steps:

- 1) Conversion of the 1-5 scale to 0-4 scale, so that 1=0, 2=1,3=2,4=3,5=4; the total scores (S) are by adding up 21 items ranging from 0 to 84;
- 2) Conversion of the total score (S) into a 100% based index using the simple calculation:
- 3)  $\text{Index} = S/84 \times 100$ .

The results in Table VIII and IV and Figure 1 show that the standardized overall mean score of 60.04 (estimated range 59.7-60.39) was not very far from the mid point (i.e.50) as a reference cut-off. However, domain means (using 1-5 points) indicated that achievement-recognition and finance were below the mid point (i.e.2.5 on a 0-4 points' scale), being 1.91 and 2.07 respectively.

## CONCLUSION

The research team has developed a tested, reliable and valid QoL measure for the elderly in Hong Kong, which we have tentatively named 'The Hong Kong Quality of Life for Older Persons Scale' (HKQoLOPs). The full scale is reliable (Cronbach's alpha = 0.72) and is valid in measuring similar constructs and in discriminating those which are

different. The older population means range is estimated to be within 59.32 to 60.72 (at 95% confidence level, on standardized scores 0-100). The overall spread of the scores shows an even distribution slightly trending towards the higher side. The scale is represented by scores on the six domains, namely subjective well-being, health, interpersonal relations, achievement-recognition, finance and living conditions. These domains have good correlations between each other, and with the composite scale as required. Each domain (apart from the single item domains i.e. finance and living conditions) also forms a reliable subscale for being used on its own for specific purposes. The research team suggests that this scale can be used to measure the quality of life of older persons in Hong Kong and also in similar Chinese elderly populations in the region and elsewhere.

Copies of the Chinese (and a non validated English translation) version of the survey questionnaire are available from the first author (by mail) and also readily viewable from the website: [www.LN.edu.hk/apias/instrument/qol](http://www.LN.edu.hk/apias/instrument/qol)

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### ACKNOWLEDGEMENTS

The research team acknowledges the assistance of Cheung Chau-kiu in the literature reviews for the early part of this study and the Health and Welfare Bureau, Government of the Hong Kong Special Administrative Region, for funding the project.

TABLE I

The HKQoLOP Scale: Question items and corresponding facets

No.	Question items	Facets
1.	Is the place in which you live comfortable?	Living Conditions
2.	Do you think you eat well?	Health-Eating Well
3.	Have you enough money for usual expenses?	Finance
4.	Have you plenty of opportunities to do things you are good at?	Achievement-recognition-self-realization
5.	Have you been praised a lot by others?	Achievement-recognition-recognition
6.	Do you think you have many talents?	Achievement-recognition-self-realization
7.	Do you usually sleep well?	Health-Sleep
8.	Can you move about by yourself?	Health-Mobility
9.	Do you frequently have infections (e.g. cold or flu, but not chronic illness )?	Health-Vulnerability to illness
10.	Is your health good?	Health-Perceived health status
11.	Are you light-hearted?	Subjective well-being –Positive affect
12.	Are many aspects in your life admired by others?	Achievement-recognition-recognition
13.	Is your living good?	Subjective well-being –Life satisfaction
14.	Are you happy most of the time?	Subjective well-being –Positive affect
15.	Are you satisfied with your present life?	Subjective well-being –Life satisfaction
16.	Are your relatives concerned about you?	Interpersonal Relations – Family relations
17.	Do you frequently feel concern of others (non-relatives)?	Interpersonal Relations – Supportive network

18.	Are people in the young generation respectful to you?	Interpersonal Relations – Family relations
19.	Are you with the person(s) you like most of the time?	Interpersonal Relations – Supportive network
20.	Do you have many friends you can talk to?	Interpersonal Relations – Supportive network
21.	Is the relationship between you and your family good?	Interpersonal Relations – Family relations

TABLE II

The HKQoLOP scale – domains, item responses, means and domain means

(on scale of 1-5)

Subjective Well-being	Item Number	5 (%)	4 (%)	3 (%)	2 (%)	1 (%)	Mean Score	SD
	14	11.3	36.4	37.7	10.0	4.5	3.4009	0.9684
	11	13.2	39.5	34.9	10.2	2.2	3.5134	0.9214
	15	9.9	43.1	36.5	7.7	2.8	3.4966	0.8772
	13	5.5	94.5	55.7	9.5	2.4	3.3791	0.7944
<b>Domain Mean</b>							3.4475	0.8904

Health	Item Number	5 (%)	4 (%)	3 (%)	2 (%)	1 (%)	Mean Score	SD
	8	37.5	40.3	13.4	8.3	0.6	4.0596	0.9415
	9	30.0	29.3	23.0	13.2	4.5	3.6725	1.1636
	7	17.0	38.5	24.4	16.6	3.5	3.4892	1.0635
	2	13.4	53.0	29.1	4.1	0.4	3.7470	0.7515
	10	8.4	35.3	36.2	17.1	3.0	3.2891	0.9472
<b>Domain Mean</b>							3.6515	0.9735

Interpersonal Relations	Item Number	5 (%)	4 (%)	3 (%)	2 (%)	1 (%)	Mean Score	SD
	16	21.7	48.6	20.7	5.1	3.9	2.7937	0.9658
	18	20.1	48.5	27.3	3.3	0.8	2.8382	0.8081
	21	23.8	50.1	23.3	2.2	0.6	2.9453	0.7793
	17	12.1	41.1	27.8	10.0	9.1	2.3709	1.1046
	19	14.7	37.6	28.4	12.1	7.3	2.4055	1.1014
	20	12.7	27.6	30.4	15.8	13.5	2.1027	1.2133
<b>Domain</b>							2.6145	0.6747

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<b>Achievement-recognition</b>	<b>Item Number</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>Mean Score</b>	<b>SD</b>
	4	9.0	16.0	24.6	39.9	10.5	2.7311	1.1265
	6	7.6	25.5	24.4	32.6	9.8	2.8896	1.1265
	5	4.6	17.6	28.6	21.2	28.0	2.4949	1.1994
	12	19.3	28.8	23.7	21.5	6.7	3.3236	1.1993
<b>Domain</b>							2.8598	1.1629

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<b>Finance</b>	<b>Item Number</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>Mean Score</b>	<b>SD</b>
<b>Domain mean</b>	3	4.5	27.8	39.7	23.5	4.6	3.0405	0.956

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<b>Living Condition</b>	<b>Item Number</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>Mean Score</b>	<b>SD</b>
<b>Domain mean</b>	1	14.8	47.0	30.0	6.6	1.6	3.6675	0.8646

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TABLE III

The HKQoLOP Scale - domains and corresponding facets

	<b>Domains</b>	<b>Facets Incorporated within domains</b>
<div style="border: 1px solid black; padding: 10px; display: inline-block; text-align: center;"> <b>The QoL Scale</b> </div>	<b>Domain 1</b> <b>Subjective Well-being</b>	<b>Positive affect</b> Item 14 (Q66) Item 11 (Q54) <b>Life Satisfaction</b> Item 15 (Q68) Item 13 (Q59)
	<b>Domain 2</b> <b>Health</b>	<b>Mobility</b> Item 8 (Q46) <b>Vulnerability to illness</b> Item 9 (Q49) <b>Sleep</b> Item 7 (Q44) <b>Eating well</b> Item 2 (Q31) <b>Perceived health status</b> Item 10 (Q51)
	<b>Domain 3</b> <b>Interpersonal relations</b>	<b>Family relations</b> Item 16 (Q69) Item 18 (Q71) Item 21 (Q74) <b>Supportive network</b> Item 17 (Q70) Item 19 (Q72) Item 20 (Q73)
	<b>Domain 4</b> <b>Achievement-recognition</b>	<b>Self-realization</b> Item 4 (Q36) Item 6 (Q41) <b>Recognition</b> Item 5 (Q38) Item 12 (Q58)
	<b>Domain 5 (single item)</b> <b>Finance</b>	Item 3 (Q32)
	<b>Domain 6 (single item)</b> <b>Living condition</b>	Item 1 (Q2)

TABLE IV

The HKQoLOPEs Scale – scales' alpha if item (domain) deleted

<b>Domains<sup>b</sup></b>	<b>Scale Mean if Item Deleted</b>	<b>Scale Variance if Item Deleted</b>	<b>Corrected Item-Total Correlation</b>	<b>Squared Multiple Correlation</b>	<b>Alpha<sup>a</sup> if Item Deleted</b>
<b>Subjective Well-being</b>	11.9372	6.1059	0.7134	0.5445	0.6037
<b>Health</b>	11.7532	7.0286	0.4602	0.2675	0.6767
<b>Interpersonal Relations</b>	11.7844	6.6023	0.5378	0.3616	0.6533
<b>Achievement – Recognition</b>	12.4680	6.7421	0.3376	0.1696	0.7125
<b>Finance</b>	12.3582	6.0372	0.4403	0.2521	0.6833
<b>Living Condition</b>	11.7519	6.8225	0.3101	0.1253	0.7219

<sup>a</sup>Alpha = 0.7150

<sup>b</sup>Total number of domains=6

TABLE V  
Correlation – Composite score and domains

	<b>Composite QOL</b>	<b>Subjective Well-being</b>	<b>Health</b>	<b>Interpersonal Relations</b>	<b>Achievement-re cognition</b>	<b>Finance</b>
<b>Composite QOL</b>	N.A.					
<b>Subjective Well-being</b>	0.815 <sup>a</sup>	N.A.				
<b>Health</b>	0.616 <sup>a</sup>	0.501 <sup>a</sup>	N.A.			
<b>Interpersonal Relations</b>	0.689 <sup>a</sup>	0.563 <sup>a</sup>	0.329 <sup>a</sup>	N.A.		
<b>Achievement- recognition</b>	0.576 <sup>a</sup>	0.385 <sup>a</sup>	0.211 <sup>a</sup>	0.357 <sup>a</sup>	N.A.	
<b>Finance</b>	0.675 <sup>a</sup>	0.492 <sup>a</sup>	0.281 <sup>a</sup>	0.296 <sup>a</sup>	0.194 <sup>a</sup>	N.A.
<b>Living Condition</b>	0.556 <sup>a</sup>	0.295 <sup>a</sup>	0.206 <sup>a</sup>	0.219 <sup>a</sup>	0.083 <sup>a</sup>	0.223 <sup>a</sup>

<sup>a</sup> p < 0.01



TABLE VI

Convergent-discriminant Validation – correlation with composite score

	<b>Correlation with Composite Score</b>	
	<b>Pearson's r</b>	<b>p</b>
a1	.40	< .001
a2	.42	< .001
b1	.24	< .001
b2	.24	< .001
c1	.05	NS
c2	.05	NS

TABLE VII

Regression of Domain Measures on Subjective Well-being

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<b>Domain measures</b>	<b>Standardized regression coefficients (all <math>p &lt; .001</math>)</b>
Interpersonal relations	.33
Finance	.27
Health	.25
Achievement-recognition	.13
Living condition	.12

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**R= .74 R<sup>2</sup>= .54 F(95,1292)=308.87,  $p < .001$**

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TABLE VIII

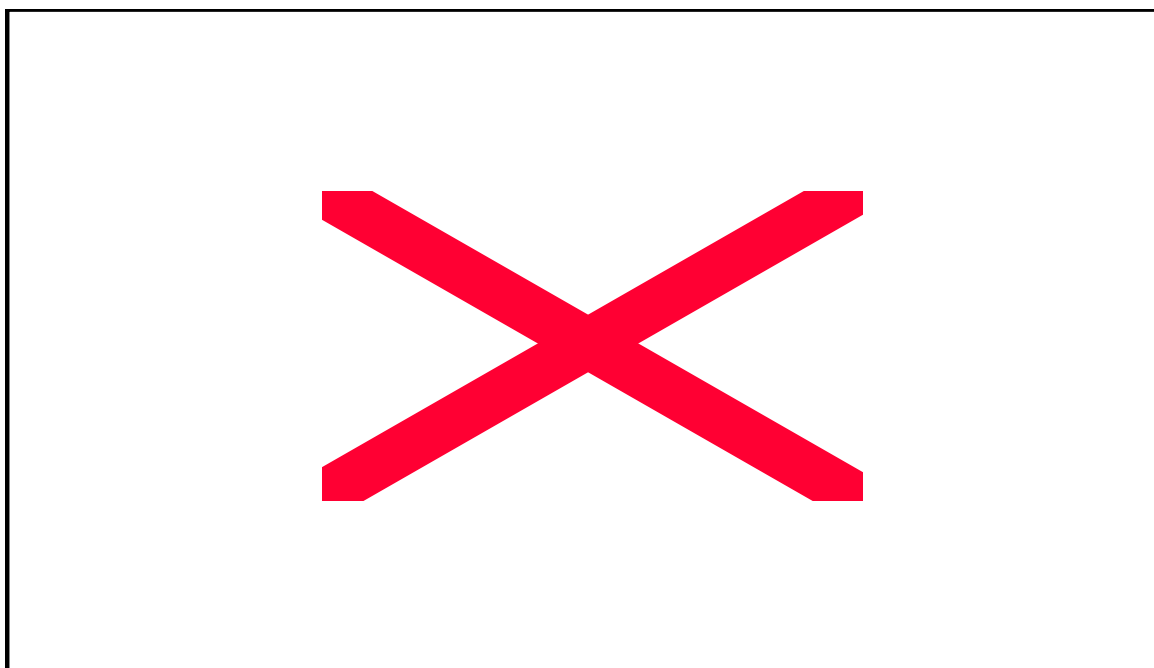
Standardized scores: composite and domains (means, SE, SD, Min., Max., and Mean Ranges (on 0-4 scale)

	Mean	S.E.	SD	Min.	Max.	Valid N	Mean Range at 95%confidence
<b>Composite QOL</b>	60.04	0.35	12.47	16.88	96.88	1264	59.7-60.39
<b>Subjective Well-being</b>	2.45	0.02	0.69	0.00	4.00	1582	2.43-2.47
<b>Health</b>	2.65	0.02	0.63	0.40	4.00	1593	2.64-2.67
<b>Interpersonal relations</b>	2.62	0.02	0.67	0.33	4.00	1483	2.60-2.63
<b>Achievement-recognition</b>	1.91	0.02	0.85	0.00	4.00	1380	1.89-1.93
<b>Finance</b>	2.04	0.02	0.94	0.00	4.00	1603	2.02-2.06
<b>Living Condition</b>	2.67	0.02	0.86	0.00	4.00	1615	2.65-2.69

TABLE IX

Distribution of composite scale scores

QoL Scores	N	%
0-9	0	0.0
10-19	1	0.1
20-29	10	0.9
30-39	43	3.8
40-49	151	13.2
50-59	348	30.5
60-69	348	30.5
70-79	164	14.4
80-89	68	6.0
90-100	9	0.8
All	1142	100.0



*Figure 1. Distribution of QoL scores on the composite scale*

This is the pre-published version of an article whose final and definitive form has been published in Social Indicators Research © Springer at <http://dx.doi.org/10.1007/s11205-004-4516-1>.  
The final publication is available at [link.springer.com](http://link.springer.com)

CHAN Cheung Ming, Alfred, is Professor at the Department of Politics and Sociology;

Director of Asia Pacific Institute of Ageing Studies, Lingnan University, Hong Kong

CHENG Sheung-tak is Associate Professor at the Department of Applied Social Studies,

City University of Hong Kong, Hong Kong

David R PHILLIPS is Head and Chair Professor, Department of Politics and Sociology,

Lingnan University, Hong Kong

Iris CHI is Head and Chair Professor at the Department of Social Work and Social

Administration, University of Hong Kong, Hong Kong

HO Chan Suet Ying, Suzanne, is Professor at the Department of Community Medicine,

Chinese University of Hong Kong.