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Quality of life in older ages

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Background: The quality of life of elderly people has become relevant with the demographic shift that has resulted in greying of population. There are indications that concepts and concerns related to quality of life in older ages are different from the general population.

Methods: A narrative review of selected literature.

Results: Quality of life is described often with both objective and subjective dimensions. The majority of the elderly people evaluate their quality of life positively on the basis of social contacts, dependency, health, material circumstances and social comparisons. Adaptation and resilience might play a part in maintaining good quality of life. Although there are no cultural differences in the subjective dimension of quality of life, in the objective dimension such differences exist. Two major factors to be considered with regard to quality of life in old age are dementia and depression.

Discussion: With all other influences controlled, ageing does not influence quality of life negatively; rather a long period of good quality of life is possible. Therefore, the maintenance and improvement quality of life should be included among the goals of clinical management.

Keywords: quality of life/ageing/adaptation/resilience/ethnic differences/dementia/depression/health-related/perceptions

Introduction

Every one has an opinion about their quality of life, but no one knows precisely what it means in general. John Stewart Mill noted that individual opinion about well-being was 'the best means of knowledge immeasurably surpassing those that can be possessed by any one else'.[1] Thus, quality of life is highly individualistic and might even be an 'idiosyncratic mystery' due to the high levels of variability between individuals, making it unsuitable for decision making.[2] However, cross-national audits of welfare or comparisons of different groups of individuals often include a metric of quality of life, underlying which is the assumptions that there are group-specific characteristics in quality of life. This review, for example, assumes that older age groups are sufficiently peculiar in this respect to merit such a review, perhaps due to

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the perception that the elderly are peculiarly vulnerable due to (1) declining physical and mental capabilities; (2) exit from labour market with greater dependence on pensions; (3) break down of extended families; and (4) isolation due to death of contemporaries, especially that of spouse or partner.[3] The interest in the topic originates from the demographic shift that has resulted in unprecedented proportions of elderly especially among the populations of the developed world.

A common experience of the reviewers of quality of life literature is how it has exponentially increased from 1970s and the multiplicity of instruments developed for measuring quality of life. Searching Pubmed with 'quality of life' in the title of articles in English, published in the last 5 years and about humans aged 65+ years yielded 3151 papers and 79 of them were reviews. The aim of this review is to provide a narrative overview of studies on the quality of life in older ages. We restrict ourselves to sketching and highlighting a few regions of importance while referring the readers to other excellent sources for the details.[4–8] Our ideas about the subject has changed from the early days of norms determined by experts, often medical, to more recent concepts of it as an individual phenomenon or a social construction[9]; the envelope of influences on it has expanded beyond the personal concerns of health and wealth to the society and beyond. A broader canvas than that could be afforded by this brief overview is needed to paint the full picture of quality of life in older ages. In choosing the contents of this review we assumed that the population of our interest was in the developed Western world where new phases of life course such as the Third Age were emerging. We do not attempt to describe or to discuss the many instruments used to measure quality of life (see References[6,10] for reviews) nor do we touch upon such substantive themes as happiness (see part 1 of Reference[11]) and flourishing (See Reference[12]).

Defining and measuring quality of life

Although there is a plethora of statements about quality of life, they tend to be descriptive rather than definitive. Most of the energy in this field is spent on measuring quality of life; therefore, the definition of quality of life, by necessity, has to be considered together with its measurement. There are three approaches to measuring quality of life: normative—the norms being dictated by beliefs, principles and philosophies about a good life; preference satisfaction—quality of life depending on availability of goods to choose from and ability to acquire them; and subjective evaluation—a good life being one that is experienced as such.[13] The last two approaches are commonly used in

developing measures of quality of life. This process of measurement has replaced the individuality, which Mill considered as an essential constituent of well-being, with a multi-dimensional approach: objective (e.g. consumption behaviour), subjective (e.g. leisure activities) and collective (e.g. governmental policy) dimensions.[14]

One of the influential conceptualization of quality of life is that of Lawton who described it as 'the multidimensional evaluation, by both intrapersonal and social-normative criteria, of the person–environment system of an individual in time past, current and anticipated' (p. 6).[15] His dimensions were arranged in a continuum of objective (objective environment, behavioural competence) and subjective (perceived quality of life, psychological well-being) dimensions. He argued that both objective and subjective dimensions were important for quality of life. His scheme is characterized by socio-normative approaches in the objective dimensions and individualistic approaches for the subjective dimensions. In his conceptualization the domains form a hierarchy so that objective dimensions should be treated as antecedent to subjective ones. In an exploratory analysis he tested the hypothesis that objective and subjective dimensions are related in a diverse group of older people and found that objective (contact with friends, and family, and time use in discretionary activities) was significantly related to subjectively assessed quality in all three domains.[16] A criticism of this conceptualization is that Lawton mixed antecedents and consequences. Ultimately quality of life in his model is decided by psychological well-being and all that comes before that could be considered as influences on it. Exhibit 1 presents a simple taxonomy of quality of life models and measures according to types of dimensions, domains and instruments.

Exhibit 1: Models and measures of quality of life

A. **Dimensions**

a. ***Objective***, on the basis of observations external to the individual such as standard of living, income, education, health status and longevity. Example of a definition of quality of life in the objective dimension[17]: 'The individual's command over resources in the form of money, possessions, knowledge, mental and physical energy, social relations, security and so on, through which the individual can control and consciously direct his living conditions'.

b. ***Subjective***, on the basis of psychological responses by the individual such as life satisfaction, happiness and self-ratings. Example of a definition of quality of life in the subjective dimension[18]: 'Quality of life is defined as an individual's perception of their position in life in the context of the culture and value system in which they live and in relation

to their goals, expectations and standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships and their relationship to salient features of their environment'.

B. **Domains**
   a. ***Physical health***, general (e.g. self-rated health) or disease-specific (e.g. Asthma[19])
   b. ***Psychological*** (e.g. subjective well-being, happiness, life satisfaction)
   c. ***Social*** (e.g. social relationships and networks) In the context of medicine, a conceptual framework to assess quality of life that combines the objective and the dimensions and the three domains as a third dimension had been suggested.[20] Other conceptual approaches include theory of human needs and their satisfaction, and environmental well-being.[4]

C. **Instruments**
   a. ***Generic***,[6,10] used here to refer to instruments which are common to all participants whose quality of life is being measured, as opposed to
   b. ***Idiopathic***,[4] which are tailored for individual participants.

Elderly peoples perceptions about quality of life

Most of the quality of life measures are not developed in elderly populations, although they are capable of thinking and talking about their quality of life. In a survey of individuals aged 65 years or more, the respondents were familiar with the term quality of life and talked about it in both positive and negative terms.[21] Almost two-thirds of the whole sample described their quality of life as positive or very positive. They evaluated their quality of life positively on the basis of comparison with others, social contacts especially with family and children, health, material circumstances and activities. In making negative evaluations, they stressed on dependency and functional limitations, unhappiness and reduced social contacts through death of friends and family members. Family, activities and social contacts were the factors, which they thought gave their life quality. Different kinds of losses such as ill health and functional limitations were seen as making quality of life worse. One of the significant findings of this study was that assessment of quality of life should include factors other than health. However, in a Brazilian study that used similar methodology, health was the most stated response to most questions on what is currently wrong with and what could increase or decrease their quality of life.[22] Similarly, in focus groups in deprived areas in England, participants found it difficult to understand the phrase quality of life itself and mentioned health and finances very frequently.[23]

In a national survey of 999 individuals aged 65 years or more, living in England and Scotland, Bowling and colleagues tried to find out

older people's concepts about quality of life by asking them.[24] Using a content analytical approach to responses to open-ended questions, they identified constituent factors of quality of life as social relationships, social roles and activities, solo activities, health, psychological, home and neighbourhood, financial circumstances, independence, miscellaneous and society/politics in the order frequency of mentioning. The same order stood for factors constituting good quality of life while health and home and neighbourhood came on the top as factors that can take away quality of life.

Gabriel and Bowling attempted to develop a conceptual framework about the quality of life using older people's views.[25] Factors enhancing the quality of life were having good social relationships with children, family, friends and neighbours; neighbourhood social capital represented by good relationships with neighbours, nice and enjoyable neighbourhood, comfortable houses and good public services such as free transport facilities; psychological factors such as optimism and positive attitude, contentment, looking forward to things, acceptance and other coping strategies; being actively engaged in social activities such as attending educational classes and volunteering; good health; financial security which brought enjoyment as well as empowerment and having not depend on others.

In a recent study from Sweden, men and women aged more than 67 years were asked what quality of life was for them; responses in rank order were social relations, health, activities, functional ability, well-being, living in one's own home, personal finances, and personal beliefs and attitudes.[26] For them living in own home and, in the context of severe illness, social relations were important for quality of life.

These studies clearly demonstrate that quality of life goes beyond health; other factors such as having good social relations, being active and able to participate in socially and personally meaningful activities and having no functional limitations are sometimes more important for older people.[4] Moreover, this understanding of quality of life crosses cultural boundaries. It is logical to wonder whether these perceptions are a result of older people living now having less health problems.

Ageing well

Related to quality of life in old age are the concepts of ageing well represented by the qualifiers such as active, positive, successful or healthy used with ageing, but 'successful ageing' is the most frequently used term. The widely accepted definition of successful ageing by Rowe and Kahn contains three components: low risk of disease and disability;

high mental and physical function; and active engagement with life.[27] The proportion of successful agers varies with the operational definition used. One review found 29 different definitions among 28 studies with an average prevalence around 36% and as the definitions become more stringent in excluding functional limitations, the prevalence declined.[28]

The distinction between successful ageing and quality of life lies in the emphasis on physical health for defining successful ageing. However, well-being is often incorporated into the concept of successful ageing and ageing well adds to the quality of life. It might also be possible that there are definitions of health which are akin to that of quality of life, for example, health as going and doing something meaningful.[29]

Quality of life in the Third Age

The influence of age on quality of life can be due to a direct effect of ageing and indirectly through the effect of ageing on factors that influence quality of life. The question, 'all things remaining constant across the lifespan what is the effect of ageing on quality of life?' has gained relevance as the nature of ageing itself is changing. From being marginal and dependent, the older person has become active and flourishing as a new life course period—the third age, the period between exit from labour force and the beginning of physical dependency—has emerged.[30] A recent development is a new measure of quality of life, which was developed with a strong underpinning theory relevant to the Third Age, distinguishing it from many other measures of quality of life.[31] The CASP-19, the acronym standing for the four domains of control, autonomy, self-realization and pleasure is now included in many national surveys in the UK and other countries and as CASP-12, a shorter version, in some European surveys. In the English Longitudinal Study of Ageing (ELSA wave 1) the average CASP-19 score was 42.5 (SD 8.7) and only those above 75 years of age had a statistically significantly lower quality of life compared with the younger age groups.[32] We were able to explain 48% of variation in CASP-19 scores with the variables used in our multiple regression models using which we constructed an age curve that showed the influence of ageing on quality of life, when all other influences were kept constant (Fig. 1 of Reference[32]). The age curve showed that as one progressed from 50 years onwards, the quality of life actually increased and peaked at 68 years before it started to decline. It decreased below the level of quality of life at age 50 only after 86 years of age. As age increased the confidence intervals became wider suggesting that

individual variations in factors influencing quality of life increased with age.

Studies had noted the stability of life satisfaction in the older ages in the face of decline in objective measures of well-being leading to a paradox.[33] Centenarians in an Italian study reported greater satisfaction with life than younger age groups.[34] They complained less about their limitations, took solace in religious faith and kept good social relationships. Quality of life was found to be significantly higher in the elderly people compared with younger people using an individual quality of life measure (the Schedule for the Evaluation of Individual Quality of Life, SElQoL) in which individuals identify five most important areas in their life and weigh them according to their significance.[35] Quality of life need not decline just because of ageing.

Adaptation and resilience

Adaptation is sometimes used as an explanation of how good quality of life is maintained in old age. In the Berlin Ageing Study, it is described in terms of selection, compensation and optimization.[36] According to this theory, in old age better quality of life can be achieved by trimming down activities, goals or domains of functioning to those which are most salient to one's life (selection); replacing losses with alternatives to achieve goals (compensation); and maximizing one's selected resources (optimization). Adaptation is also described in terms of response shift, by which individuals change their internal standards, values and conceptualizations of quality of life to accommodate some hardship or negative circumstance.[37] As a result of response shift the meaning of one's self-evaluation of quality of life will change.

Closely allied to adaptation is resilience, which is the phenomenon of people beating the odds and doing well against expectation.[38] Our studies of resilience in old age suggest that social participation and social support promote resilience so that people faced with adversities reported high quality of life. A mediating role for older people's sense of mastery of their environment has been suggested to improve life satisfaction.[39] Resilience can be used to explain the 'well-being paradox' which occurs when older people with limitations in everyday functioning still report a high level of well-being.[40]

There is an ethical dimension to adaptation that is salient to quality of life in older people: that the adaptation could be a case of 'sour grapes' in which case the self-evaluation of the quality of life in adverse circumstances is influenced by the outcome.[41] For example, for 15% of healthy older people who were consciously afraid of death, just being

alive was quality of life.[42] Nonetheless one would hesitate before accepting that definition for quality of life.

Psycho-social factors

Social comparison plays a role in preservation of quality of life in older ages as health and other circumstances deteriorate.[43] It is a strategy that is often used by older people and may be upward/downward contrast or identification and combinations there of.[44] The predominant strategy is downward contrast and those who employ it feel grateful or happy that they are doing well relative to others who are less fortunate.

High-quality social relations add to the quality of life in older ages. Quality of social networks predict higher CASP-19 scores[32] and promotes resilience so that high quality of life was maintained in the presence of limiting long-standing illness.[38] Social support can influence quality of life but sometimes differentially, while emotional support is positively associated with quality of life, receiving instrumental support can reduce well-being by accentuating the dependence that resulted in the need for such type of support.[45]

The perception of control is believed to contribute to well-being. In the Berlin Aging Study, the belief that one has control over the desired out come was shown to have a positive effect on emotional well-being.[46] An opposite effect was observed if the belief was other people controlled their lives. A third type of control that one was responsible for an undesired out come was negatively associated with emotional well-being in cross-sectional studies while positively associated in longitudinal analysis.

Ethnic differences in quality of life

Studies on ethnic differences on quality of life of elderly people are few. One reason might be the perception that ethnic minorities form a small segment of the population, are relatively younger and are independent of the social institutions for support in old age. Grewal and colleagues did a qualitative interview study of 73 purposively selected individuals from Fourth National Survey of Ethnic Minorities conducted in England and Wales in 1993–1994.[47] Paralleling that was a quantitative analysis of the survey.[37] It is interesting that quantitative and qualitative phases of the same research threw up different conclusions: qualitative study suggesting universality of influences with differences only in how they manifest while quantitative study showed differences between ethnic groups. One of the major influences

identified in the qualitative study was the sense of purpose and the feeling of usefulness generated by having a role.[47] The role usually emerges from inter-generational relationship and also from caring for their spouses or partners. Other significant influences were from the support networks from family, friends and religion. For all ethnic groups spouses and partners were sources of love and companionship, often the link to wider family and social networks. Bereavement brought in loss of companionship and sometimes practical support. Family support for white ethnic groups came from siblings, whereas for the minority ethnic groups, children were the main source. Across the ethnic groups respondents received support from friends and religion although there was some difference between White and minority ethnic groups. There were greater diversity in terms of income and wealth, and health. One of the ways in which the impact of these influences was felt is through the limitation they bring upon the roles the respondents wanted to play. For the minority ethnic groups, inability to play the expected role of elder in the community and difficulty in maintaining connections with 'home' through the expensive journey to the country of birth had negative impacts on quality of life.

The companion quantitative study found differences among ethnic groups in the factors studied and in the responses to the factors.[48] While the White ethnic group did the best in conventional indicators such as material circumstances and health, the Pakistani group did the best in subjective factors such as perception of neighbourhood and frequency of contacts with family.

Health-related quality of life

Quality of life constitutes the highest level of health outcomes that start with biological and physiological factors and proceed through symptoms, functional states and general health perceptions.[49] Health-related quality of life can be defined as:

> *The value assigned to the duration of life as modified by the impairments, functional states, perceptions and social opportunities that are influenced by disease, injury, treatment or policy.*[50]

The phrase 'the value assigned to the duration of life' reflects the narrow scope of health-related quality of life as a valued end point in health care, which has as its objective the provision of 'incremental survival time and/or incremental quality to that time'.[51] An example of incorporation of time into health-related quality of life measurement implied by this definition is the Quality Adjusted Life Years.[14] Hickey

and colleagues reviewed the measurement of health-related quality of life in older patients and found that both generic and specific measurement instruments were used for the purpose of measuring health-related quality of life.[52] Among the generic measures various forms of Medical Outcome Study health surveys such as SF-36 were predominant. Often more than one measure of generic health-related quality of life was used. Disease-specific health-related quality of life measures were used in less than a quarter of the studies reviewed and the commonest measure was Minnesota Living with Heart Failure Questionnaire (MLHFQ). However, the authors identified problems with health-related quality of life in the aged; none of the studies reviewed used a measure developed specific to old age and partly as a result of this health-related quality of life were biased towards physical functioning at the expense of other dimensions, which might be important for older age groups. This leads to the well-being paradox mentioned above.

Comparisons of health-related quality of life between the young and the old in the same study can be used to unravel some of these problems. In one of the studies where it has been done, Trief *et al.* compared the health-related quality of life of elderly (>64 years) and younger (30–64 years) insulin-treated diabetes patients.[53] The mean age of participants in the studies used to develop the quality of life instruments (one generic SF36 and three diabetic-specific) these authors used were with in 28–58 years of age. As would be expected, the older group fared badly on the physical component while doing better on the mental component of the generic measure. The elderly had greater satisfaction, lesser impact on emotions and better coping abilities in the disease-specific measures. The studies reviewed by Hickey also reiterate these findings for elderly patients with cardiovascular, neurological and mental health problems.[52]

Quality of life in dementia and depression

Quality of life in dementia raises important issues about its assessment. Almost all definitions of quality of life expect individuals to make the assessment of their quality of life. However, whether an individual with dementia is capable of making such complex evaluations is the question. When the judgement is compromised by cognitive impairments, how trust worthy would be the self-reports on one's affective state? Wong and colleagues in developing a screening instrument to assess the ability to report self-rated quality of life in young mental patients, the capacity to report subjective quality of life inventory (CapQOL), had identified five points, which are relevant for elderly

too: acquiescence (tendency to agree whatever the question), consistency in answers, understanding of response format, understanding of the domains in the quality of life assessment tools and ability to evaluate and compare one's situation.[54] In addition, as dementia progresses the relative importance of an aspect of life might change. Attempts to overcome the limitations of self-reports include using proxy respondents; however, there is minimal agreement between self-evaluation and proxy evaluation. In frail older people observational schedules were found to perform better than self-reports.[55] The use of generic measures of quality of life might lack content validity with respect to dementia. Dementia-specific measures give primary importance to affect as a domain and in addition might include one or more of other domains such as self-esteem, activities, enjoyment and social interaction.[56] However, in early stages of dementia, self-evaluation of quality of life was good and satisfaction with life was high.[57]

Old age is a phase in life where there is a greater probability of social disruptions such as bereavement, social isolation, physical disability and cognitive decline, all of which contribute to depression.[58] Quality of life declines with depression and in the clinical setting a measure of depression showed similar profiles as measures of well-being, so much to make a separate measure of well-being redundant.[59] In the ELSA sample prevalence of depression was about 24% and the influence of depression was the highest among all the predictors of CASP-19; in the depressed CASP-19 scores dropped by 5.5 points.[32] In comparison, the next biggest influence, functional limitations, reduced CASP-19 scores by about two points.

Use of quality of life

The discussion about quality of life was started more than two millennia ago by Aristotle, but we are still arguing about what it means. Aristotelian concept of good life is not only something to live for but also something to live by. This is truer at older ages where living can be described in terms of strategies for maintaining quality of life. As the review above shows most of them have mastered the art of developing such strategies. For the clinician this is the cue to include quality of life into goals of patient management. The difficulty lies in assigning a clinically meaningful value for the difference in some particular quality of life score one should aim for after an intervention.[60] For the patient such a value would be the minimum change they perceive as beneficial and would indicate the need for change in their management to accommodate it. For the clinician, it would be the smallest effect size which would make them recommend an intervention. However the

meaningfulness of change depends on a variety of conditions such as how the change is conceptualized, what quality of life measure is used, whether it was a positive or negative change and what was the baseline score.

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References

1 Mill JS (1885) *On Liberty*. New York, NY: JB Alden, 128.
2 Leplége A, Hunt S (1997) The problem of quality of life in medicine. *JAMA*, **278**, 47–50.
3 Williams A (1977) Measuring the quality of life of the elderly. In Evans A, Wingo L (eds) *Public Economics and the Quality of Life*. Baltimore: The Johns Hopkins University Press, 282–297.
4 Brown J, Bowling A, Flynn TN (2004) *Models of quality of life. A taxonomy and systematic review of the literature*. European Forum on Population Ageing Research, http://www.shef.ac.uk/ageingresearch/pdf/qol_review_no_tables.pdf. Accessed on 1 January 2008.
5 Galloway S, Bell D, Hamilton C, Scullion A (2006) *Well-being and quality of life: measuring the benefits of culture and sport – a literature review and thinkpiece*. Edinburgh: Scottish Executive, http://www.scotland.gov.uk/Publications/2006/01/13110743/0. Accessed on 1 January 2008.
6 Dolan P, Peasgood T, White M (2005) Review of research on the influences on personal well-being and application to policy making. http://www.defra.gov.uk/science/project_data/DocumentLibrary/SD12005/SD12005_4017_FRP.pdf. Accessed on 1 January 2008.
7 Taillefer MC, Dupuis G, Roberg MA, LeMay S (2003) Health-related quality of life models: systematic review of the literature. *Soc Indic Res*, **64**, 293–323.
8 O'Boyle CA (1997) Measuring the quality of later life. *Philos Trans R Soc Lond B Biol Sci*, **352**, 1871–1879.
9 Walker A (2004) The ESRC growing older research programme, 1999–2004. *Ageing Soc*, **24**, 657–674.
10 Haywood KL, Garratt AM, Schmidt LJ, Mackintosh AE, Fitzpatrick R (2004) Health status and quality of life in older people: a structured review of patient-reported health instruments. Report from the Patient-reported Health Instruments Group (*formerly the Patient-assessed Health Outcomes Programme*) to the Department of Health, April 2004. Available at http://phi.uhce.ox.ac.uk/. Accessed on 1 January 2008.
11 Sirgy MJ, Rahtz D, Coskun SA (eds) (2003) *Advances in Quality-of-Life Theory and Research*. New York, NY: Springer.
12 Huppert F, Baylis N, Keverne B (2005) The *Science of Well-Being*. Oxford: Oxford University Press.
13 Brock D (1993) Quality of life in health care and medical ethics. In Nussbaum M, Sen A (eds) *The Quality of Life*. Oxford: Clarendon Press, 95–132.

14 Wingo L (1977) Objective, subjective and collective dimensions of the quality of life. In Evans A, Wingo L (eds) *Public Economics and the Quality of Life*. Baltimore: The Johns Hopkins University Press, 13–27.
15 Lawton MP (1991) A multidimensional view of quality of life in frail elders. In Birren J, Lubben J, Rowe J, Detchman D (eds) *The Concept and Measurement of Quality of Life in the Frail Elderly*. San Diego, CA: Academic Press, 3–27.
16 Lawton M, Winter L, Kleban MH, Ruckdeschel K (1999) Affect and quality of life. Objective and subjective. *J Aging Health*, **11**, 169–198.
17 Erikson R (1993) Descriptions of inequality: the Swedish approach to welfare research. In Nussbaum M, Sen A (eds) *The Quality of Life*. Oxford: Clarendon Press, 67–83.
18 WHOQOL Group (1993) *Measuring Quality of Life: The Development of the World Health Organisation Quality of Life Instrument (WHOQOL)*. Geneva: World Health Organisation.
19 Juniper EF, Guyatt GH, Epstein RS, Ferrie PJ, Jaeschke R, Hiller TK (1992) Evaluation of impairment of health-related quality of life in asthma: development of a questionnaire for use in clinical trials. *Thorax*, **47**, 76–83.
20 Testa MA, Simonson DC (1996) Assessment of quality-of-life outcomes. *N Engl J Med*, **334**, 835–840.
21 Farquhar M (1995) Elderly people's definitions of quality of life. *Soc Sci Med*, **41**, 1439–1446.
22 Xaviera FMH, Ferraz MPT, Marc N, Escosteguy NU, Moriguchi EH (2003) Elderly people's definition of quality of life. *Rev Bras Psiquiatr*, **25**, 31–39.
23 Scharf T, Phillipson C, Kingston P, Smith AE (2000) *Social Exclusion and Older People: Towards a Conceptual Framework*. Centre for Social Gerontology Working Paper 6, Keele University, Keele Press. http://www.keele.ac.uk/research/lcs/csg/downloads/social%20exclusion.pdf Accessed on 3 January, 2008.
24 Bowling A, Gabriel Z, Dykes J *et al.* (2003) Let's ask them: definitions of quality of life and its enhancement among people aged 65 and over. *Int J Aging Hum Dev*, **56**, 269–306.
25 Gabriel Z, Bowling A (2004) Quality of life from the perspectives of older people. *Ageing Soc*, **24**, 675–691.
26 Wilhemson K, Andersson C, Waern M, Allebeck P (2005) Elderly people's perspectives on quality of life. *Ageing Soc*, **25**, 585–600.
27 Rowe JW, Kahn RL (1998) *Successful Aging*. New York, NY: Random House (Pantheon).
28 Depp CA, Jeste DV (2006) Definitions and predictors of successful aging: a comprehensive review of larger quantitative studies. *Am J Geriatr Psychiatry*, **14**, 6–20.
29 Bryant LL, Corbett KK, Kutner JS (2001) In their own words: a model of healthy aging. *Soc Sci Med*, **53**, 927–941.
30 Laslett P (1996) *A Fresh Map of Life*. London: Macmillan.
31 Hyde M, Wiggins RD, Higgs P *et al.* (2003) A measure of quality of life in early old age: the theory, development and properties of a needs satisfaction model (CASP-19). *Aging Ment Health*, **7**, 186–194.
32 Netuveli G, Wiggins RD, Hildon Z, Montgomery SM, Blane D (2006) Quality of life at older ages: evidence from the English longitudinal study of aging (wave 1). *J Epidemiol Community Health*, **60**, 357–363.
33 Staudinger UM (2000) Viele Grunde sprechen dagegen, und trotzdem geht es vielen Menschen gut: Das Paradox des subjektiven Wohlbefindens (Many reasons speak against it, yet many people feel good: the paradox of subjective well-being). *Psychol Rundsch*, **51**, 185–197.
34 Buono MD, Urciuou O, de Leo D (1998) Quality of life and longevity: a study of centenarians. *Age Ageing*, **27**, 207–216.
35 Browne JP, O'Boyle CA, McGee HM *et al.* (1994) Individual quality of life in the healthy elderly. *Qual Life Res*, **3**, 235–244.
36 Baltes PB, Mayer KU (eds) (1999) *The Berlin Aging Study: Aging from 70 to 100*. New York, NY: Cambridge University Press.
37 Sprangers MAG, Schwartz CE (1999) Integrating response shift into health-related quality of life research: a theoretical model. *Soc Sci Med*, **48**, 1507–1515.
38 Bartley M (ed) (2006) *Beating the Odds*. London: UCL.

39 Windle G, Woods RT (2004) Variations in subjective wellbeing: the mediating role of a psychological resource. *Ageing Soc* **24**, 583–602.
40 Greve W, Staudinger UM (2006) Resilience in later adulthood and old age: resources and potentials for successful aging. In Cicchetti D, Cohen A (eds) *Developmental Psychopathology*, 2nd ed. New York, NY: Wiley, vol. 3, 796–840.
41 Elster J (1983) *Sour Grapes: Studies in the Subversion of Rationality*. Cambridge, UK: Cambridge University Press.
42 Butler RN (1997) Towards a definition of quality of life for an aging society. In Symposium report: *The Quality of Life in Old Age: Views from Various Cultural Perspectives*. New York: International Longevity Center, 5–9. www.ilcusa.org/_lib/pdf/f0653-Symposium.pdf. Accessed on 3 January 2008.
43 Gibbons FX (1999) Social comparison as a mediator of response shift. *Soc Sci Med*, **48**, 1517–1530.
44 Beaumont JG, Kenealy PM (2004) Quality of life perceptions and social comparisons in healthy old age. *Ageing Soc*, **24**, 755–769.
45 Reinhardt JP, Boerner K, Horowitz A (2006) Good to have but not to use: differential impact of perceived and received support on well-being. *J Soc Pers Relat*, **23**, 117–129.
46 Kunzmann U, Little T, Smith J (2002) Perceiving control: a double-edged sword in old age. *J Gerontol B Psychol Sci Soc Sci*, **57**, P484–P491.
47 Grewal I, Nazroo J, Bajekal M, Blane D, Lewis J (2004) Influences on quality of life: a qualitative investigation of ethnic differences among older people in England. *J Ethn Migr Stud*, **30**, 737–761.
48 Bajekal M, Blane D, Grewal I, Karlsen S, Nazroo J (2004) Ethnic differences in influences on quality of life at older ages: a quantitative analysis. *Ageing Soc*, **24**, 709–728.
49 Wilson IB, Cleary PD (1995) Linking clinical variables with health-related quality of life: a conceptual model of patient outcomes. *JAMA*. **273**, 59–65.
50 Patrick D, Erickson P (1993) Assessing health-related quality of life for clinical decision-making. In Walker S, Rosser R (eds) *Quality of Life Assessment: Key Issues in the 1990s*. Dordrecht: Kluwer, 11–63.
51 Read L (1993) The new era of quality of life assessment. In Walker S, Rosser R (eds) *Quality of Life Assessment: Key Issues in the 1990s*. Dordrecht: Kluwer, 3–10.
52 Hickey A, Barker M, McGee HM, O'Boyle C (2005) Measuring health-related quality of life in older patient populations. A review of current approaches. *Pharmacoeconomics*, **23**, 971–993.
53 Trief PM, Wade MJ, Pine D, Weinstock RS (2003) A comparison of health-related quality of life of elderly and younger insulin-treated adults with diabetes. *Age Ageing*, **32**, 613–618.
54 Wong JGWS, Cheung EPT, Chen EYH *et al*. (2005) An instrument to assess mental patients' capacity to appraise and report subjective quality of life. *Qual Life Res*, **14**, 687–694.
55 McKee KJ, Houston DM, Barnes S (2002) Methods for assessing quality of life and in well-being in frail older people. *Psychol Health*, **17**, 737–751.
56 Ettema TP, Droes R-M, de Lange J, Mellembergh GJ, Ribbe MW (2005) A review of quality of life instruments used in dementia. *Qual Life Res*, **14**, 675–686.
57 Katsuno T (2005) Dementia from the inside: how people with early-stage dementia evaluate their quality of life. *Ageing Soc*, **25**, 197–214.
58 Shear K, Ginsberg DL, Roose SP, Lenze EJ, Alexopoulos GS, Hollander E (2005) Depression in the elderly: the unique features related to diagnosis and treatment. *CNS Spectr*, **10** (Suppl 8), 1–27.
59 Coleman PG, Philip I, Mullee MA (1995) Does the use of the Geriatric Depression Scale make redundant the need for separate measures of well-being on geriatrics wards? *Age Ageing*, **24**, 415–420.
60 Hays RD, Woolley JM (2000) The concept of clinically meaningful difference in health-related quality-of-life research. How meaningful is it? *Pharmacoeconomics*, **18**, 419–423.