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Older people in Sweden with various degrees of present quality of life: their health, social support, everyday activities and sense of coherence

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Abstract

Public health policies in most European countries are concerned with how to keep older people living independently with a qualitatively good life in the community as long as possible. However, knowledge about what may characterise those seemingly “healthy” older people is sparse. Such knowledge is useful to accommodate interventions targeting those at risk of low Quality of Life (QoL). To investigate the characteristics of a sample of people (75+) reporting various degrees of present QoL in regard with different QoL areas, as well as in regard with self-rated health, health problems, social support, everyday activities and sense of coherence. A postal questionnaire was sent out in spring 2001 to a randomly selected population-based sample (n=600) in the southern parts of Sweden. A two-step cluster analysis was performed (n=385, mean age 84.6, SD = 5.7) with “present QoL” as clustering attribute. Three groups were disclosed, classified as high, intermediate and low present QoL, of which 33.8% could be regarded being at risk of low QoL. Those with low present QoL (18.4%) were the oldest and most vulnerable, a majority were women with “poor or bad” self-rated health, high frequencies of health problems, low total QoL, low social support and sense of coherence and less physically active. Those with high present QoL (47.8%) reported more “excellent or good” self-rated health, physical activity, satisfactory social support and higher sense of coherence and total QoL than the other two groups. Those with intermediate present QoL (33.8%) had more of “poor or bad” self-rated health, more health problems were less physically active, had lower total QoL and sense of coherence, and less social support than those with high present QoL. The sample seemed to reflect the ageing process in that the respondents were at different stages of ageing. However, the fact that the level of social support, sense of coherence and self-rated health followed the same curve as QoL may indicate that some are more vulnerable to low present QoL given the same health and these should be targeted in preventive programmes since they report low QoL.

Keywords: age 75+, health problems, nursing, quality of life, social care

Introduction

Public health policies in most European countries are concerned with how to keep older people living independently with a qualitatively good life in the community as long as possible (Elkan *et al.*, 2001; Lagergren, 2002). Knowledge about what may characterise those seemingly “healthy” older people living in their own homes is still sparse, especially understanding what differentiates those with various degrees of Quality of Life (QoL). To support independent living in this group, health and social care professionals may need to apply preventive interventions focusing on aspects related to QoL. Preventive home visits to older people can for instance be beneficial for their QoL as such interventions can postpone functional decline as well as hospital and nursing home admission (Stuck *et al.*, 2000; van Haastregt *et al.*, 2000). QoL assessments can be helpful in identifying people at risk of poor health and serve as a diagnostic process facilitating the development of suitable interventions (cf. Vernon, Ross & Gould, 2000). However, limited health and social care resources all over Europe make it necessary to target care and interventions towards where it most is needed (Vernon, *et al.*, 2000). To be able to assist those at risk of low QoL to remain in their own homes, a comprehensive understanding of what may characterise them is required.

The changing age structure in society with a majority of older people living longer than in previous generations (Fries, 2002) means that health and social care services is facing challenges. To offer high-quality health and social care, knowledge about the conditions influencing older people’s lives and QoL is needed. Studies (Bond, Briggs & Coleman, 1998; Brayne *et al.*, 2001) suggest that heterogeneity rather than homogeneity is a main feature among them and that this diversity tends to increase with age. Thus, people are likely to have different personal resources available and different needs, i.e. “sub-groups” may exist among them. Gaining knowledge about such subgroups, their possible characteristics and their QoL

seems important if we are to outline preventive programmes. Such programmes may well be distinguished by different goals e.g. enable people to live their lives as independently as possible, and target different interventions e.g. health promotion, domiciliary support, as well as social support provided by for instance volunteers to be effective (cf. Godfrey, 2001; cf. Faulkner & Davies, 2005).

Promoting and improving people's QoL is seen as one of health and social care's most important goals (Godfrey, 2001; Holmes, 2005). This is especially important in the care of older people, where cure or complete relief is not always possible. Despite ongoing debate concerning the constituents of QoL and how to measure it, QoL has become integrated in health and social care as an important tool for evaluating service effectiveness as well as for the allocation of health and social care resources (cf. Dempster & Donnelly, 2000; Vernon *et al.*, 2000). Browne *et al.* (1994) offered a description of QoL as "a dynamic interaction between the external conditions of an individual's life and the internal perception of those conditions" (p. 235). A description that implies that QoL involves a "broader view" than health-related QoL, as other areas may be included: housing, economy, and environment. Accordingly, QoL seems more applicable than health-related QoL when exploring what may characterise older people living at home. This may minimise the risk of excluding areas of importance for their QoL. Furthermore, investigations of QoL can provide knowledge about influential factors and whether they buffer against a low QoL or hinder a high QoL.

Several factors have been shown to influence people's QoL (Raphael *et al.*, 1997; Bowling *et al.*, 2003). One of the most frequently mentioned factors associated with QoL in old age is supposed to be health (Bowling *et al.*, 2003). Raphael *et al.* (1997) found a strong relationship between people's (mean 73 years) QoL and self-rated health. Browne *et al.* (1994) found that

people (mean 73.7 years) stated health as the second most important factor influencing QoL whilst leisure and social activities were stated as the most important factor. Bowling (1995) showed that, the older the person was, the more likely it was that health was stated as the most important factor for QoL (25–75 years). Thus, the findings suggest that health plays a prominent role, but that there may still be a wide range of other factors contributing to people's QoL.

It may well be that health problems will have a more negative impact on people's QoL than diseases as such. Studies with older people living at home in Sweden (Stenzelius *et al.*, 2005; Borglin *et al.*, 2005), in the United Kingdom (Brown *et al.*, 1997) and in Australia (Byles, 2000), show that a variety of health problems, e.g. urinary incontinence, restricted mobility, hearing and vision impairment, in general are common. Despite the fact that most of the complaints are highly prevalent and with consequences for everyday life and QoL (Stenzelius *et al.*, 2005; Borglin *et al.*, 2005), they remain undetected unless they are especially looked for (Brown *et al.*, 1997; Byles, 2000). This indicates unmet needs and that people may not always address their complaints when meeting health and social care professionals, even though most of them are amenable to effective interventions.

There is more to older people's QoL than health. Social and environmental factors may influence their QoL, and social support and participation have been shown to be associated with how they rate QoL (Bowling *et al.*, 2003). However, the older people become, the greater the likelihood is that their networks will change for the worse. As friends and family pass away, support shrinks and so may their possibilities to participate and engage in activities. Even if a majority is able to maintain independent living (Farquhar & Bowling, 1993), some may have difficulties affecting their ability to participate in activities. Within

health care, assessments of activities of daily living are mainly concerned with evaluating physical functioning, i.e. personal or instrumental activities of daily living. It is rare to find a focus on enjoyable activities that can be hypothesised to promote QoL, e.g. reading, listening to music. Even so, activities may become “more or less” important for people’s QoL, since their value system may change as personal, environmental and social circumstances alter.

How older people manage to cope with changes and how they perceive their QoL are presumably also influenced by personal resources. Sense of coherence is an individual-based coping resource and a prerequisite influencing how one copes with stressful events and environmental threats (Antonovsky, 1987). High sense of coherence has been shown to be related to high QoL (Underhill Motzer & Stewart, 1996) and is supposed to consist of the components: comprehensibility i.e. whether life makes sense; manageability i.e. problems that arise will be bearable; meaningfulness i.e. life is viewed as a challenge (Antonovsky, 1996). High sense of coherence may thus be a dimension of personal strength. Considering that ageing implies a high probability of changing life circumstances, e.g. in health, support, activities of daily living, it seems likely that people’s stress and need to adapt will increase rather than decrease as they grow older. How well they adapt is probably related to their sense of coherence.

Altogether, several factors may promote or hinder older people’s everyday life and hence influence their QoL. Investigating “sub-groups” from various degrees of “QoL” may provide knowledge of those leading a good life as well as of those at risk of low QoL or already having a low QoL. Such knowledge is needed to outline programmes to identify them as well as interventions to improve their QoL.

Objectives

To investigate the characteristics of a sample of people (75+) reporting various degrees of present QoL in regard with different QoL areas, as well as in regard with self-rated health, health problems, social support, everyday activities and sense of coherence.

Methods

Sample

The sample in this study initially participated in a cross-sectional postal questionnaire survey carried out in urban and rural areas in the southern part of Sweden during summer and autumn 2000. A randomly selected sample stratified in four age groups (75-79, 80-84, 85-89, 90+) were the targeted sample (n=8500) of the main study (Stenzelius *et al.*, 2004). A total of 4197 people responded to the postal questionnaire and of those, 2887 stated they were living in own homes and independent of help with personal and/or instrumental activities of daily living. Three to six months after data collection for the main study closed, 600 of the latter group were selected at random using SPSS (SPSS Inc., 2003), 150 being selected from each of the four age groups. A formal sample size calculation was not possible given a lack of normative values for persons aged 75 and over, and 150 per group was a pragmatic choice given the funding and resources available, allowing sufficiently precise estimation while not increasing respondent burden (other studies were being performed on respondents from the main study at the same time). Those selected were invited to participate in a postal questionnaire follow-up study during spring 2001, with an initial letter and one reminder letter sent.

The Ethics Committee of the Medical Faculty at Lund University approved the study (LU 478-99).

Measurements

In this study several independent variables were used as profiling variables (cf. Hair *et al.*, 1998) in the analysis. From the postal questionnaire survey, socio-demographic data (Table 1), data were used about social support (Table 2), everyday activities and health problems (Table 3). Three items interpreted to indicate social support (cf. Wenger, 1991): “Do you have someone you can trust and rely on?” “How often have you felt lonely during the last year?” and “How often do you feel afraid?” were dichotomised to be of equal worth (1= negative reply, 2= any degree of positive reply) and added up to a summary score with six as maximum and three as minimum score. Health problems were, “Have you been troubled by one or more of the following complaints in the last three months” and were followed by four response alternatives ranging from “No, not at all” to “Yes, very much”. Only complaints where >30% had replied some degree of troubles were included (Table 3). Everyday activities were “To what extent do you..” followed by e.g. “Socialise with family and...,” “Spend time outdoors...,” with four responses ranging from “Not at all” to “Often”.

From the follow-up questionnaire, the Life quality Gerontological Centre scale (LGC), the 13-item sense of coherence scale was used as well as a self-rated health item to assess health status. The LGC is a global quality of life instrument made up of items originating from established questionnaires (Neugarten, Havighurst & Tobin, 1961; Lawton, 1975; Rubenowitz, 1980) and consists of 10 areas: present QoL, mental stability, life span QoL, psychosomatic health, satisfaction with residential environment, relations with neighbours, satisfaction with economic situation, importance of social activities, close relations, view of daily life – all considered as dimensions of QoL (Nordbeck *et al.*, 1992). Scores are calculated as mean value for each area or as a total mean score for all areas (zero worst possible, 1 ideal value). The LGC has been used in previous studies among older people in Sweden and

reliability has been reported to range between 0.79 and 0.91 (Nordbeck *et al.*, 1992; Hagberg, Hagberg & Saveman, 2002; Borglin *et al.*, 2005). Antonovsky's (1993) 13-item sense of coherence scale measures comprehensibility, manageability and meaningfulness and the maximum score is 91 and the minimum is 13. The scale has been validated for a Swedish context and seems to work well in groups of older people (cf. Nilsson *et al.*, 2003), and reliability has been reported to range between 0.74 and 0.91 (Antonovsky, 1993). The validated Swedish version of the Short Form Health Study, SF-36 (Ware & Sherbourne, 1992; Sullivan, Karlsson & Taft, 1997) was also part of the follow-up questionnaire. As earlier research (Bryant, Beck & Fairclough, 2000) supports the use of a well validated item as a single self-rated health item, the SF-36 question; "In general, would you rate your health at this time as?" with five responses ranging from "excellent" to "bad", was used to assess health status.

Data analysis

In comparisons between two groups Student's *t*-test was used for ratio data, Mann-Whitney U-test for ordinal data and Pearson's Chi-square test for nominal data. One-way analysis of variance (ANOVA) was used for comparing ratio data between more than two groups, Kruskal-Wallis one-way ANOVA test for ordinal data, and Pearson's Chi-square test for nominal data. Due to multiple comparisons, a reduced significance level (Bonferroni correction) was used. *P*-values are compared against the modified significance level $\alpha = 0.05$ divided by number of comparisons to minimise the risk of type I errors (Altman, 1997).

A two-step cluster analysis was conducted in the total sample with "present QoL" (mean score) as the clustering attribute i.e. dependent variable (cf. Palos *et al.*, 2004). The clustering variable was chosen since it reflects the respondents' perception of their prevailing QoL (here and now) as well as to practical considerations i.e. including as many of the participants as

possible for validity as this was the area that had the least internal dropout (cf. Hair *et al.*, 1998). Cluster analysis is principally viewed as exploratory (Hair *et al.*, 1998). One of the strengths with the two-step cluster analysis in SPSS is that it can be set to automatically determine the most correct numbers of clusters in large datasets and that option was used in this study. Using cluster analysis, instead of “subjectively” splitting groups based on e.g. a histogram, was founded on a desire to “objectively” explore the possibility to find X numbers of clearly defined homogeneous groups without any substantial overlap in the data (cf. Beckstead, 2002). As present QoL can be considered a continuous variable, Euclidean distance was used as measure in the analysis. Data were analysed using SPSS for Windows statistical software Release 12.0.1. (SPSS Inc., 2003)

Variables were recoded for the descriptive and comparative analysis. Location was categorised as “countryside/hamlet” and “village/city”. The five responses to the self-rated health item were categorised as “excellent, very good and good” or as “poor and bad” to compensate for low frequency (5.3%) in the extreme category (cf. Idler & Kasl, 1995). Internal consistency was 0.89 for LGC and 0.80 for sense of coherence using Cronbach’s alpha coefficient (Cronbach, 1951).

Results

A total of 462 (80% of the 579 who could be contacted) responded to the follow-up questionnaire. Among the initially targeted 600 people, 117 dropped out and 21 were ineligible (15 deceased, 6 address unknown). Explanations given for dropping out (63) were being too sick, too tired or not wanting to participate whilst 42 gave no reason and 12 respondents were excluded as they had responded to less than 15 questions. However, only those respondents where it was possible to calculate a present QoL score could be included in the two-step cluster analysis. This resulted in a further loss of 77 respondents, leaving 385

respondents (mean age 84.6) in this study. Those excluded were significantly older (86.3 vs. 84.6, $p = 0.015$) and reported significantly poorer health ($p=0.028$) than those remaining in the analysis. There were no other significant differences between the groups (Table 1).

Insert Table 1 about here

The two-step cluster analysis revealed three groups, with present QoL classified as high (cluster I $n=184$, 47.8%) with a mean score of 0.80 (SD = 0.09, range 0.68–1.0), intermediate (cluster II $n=130$, 33.8%) with a mean score of 0.53 (SD = 0.08, range 0.41-0.64), and low (cluster III $n=71$, 18.4%) with a mean score of 0.25 (SD = 0.10, range 0.0-0.36) (Table 2).

Insert Table 2 about here

In Cluster I (high present QoL) 48.4% was women. The respondents had a mean age of 83.1, 42.9% lived alone and 35% were widowed. In this cluster, 11.5% had “poor or bad” self-rated health, a social support score of 5.3 and a sense of coherence score of 81.6 (Table 2). Their total QoL scores were 0.84 and the QoL areas score ranged between 0.59 (close relations) and 0.97 (satisfaction with residential environment). Of those with high present QoL, 96.7% “fairly often or often” engaged in the activity “watching television and/or listening to the radio” and 46.2% in “being by oneself”. Of the respondents, 16.8% reported “rather much or very much” hearing impairment and 1.2% reported fatigue (Table 3).

Cluster II (intermediate present QoL) was characterised by that 59.2% were women and the mean age was 85.7 years, 56.2% were widowed and 64.6% lived alone. “Poor or bad” self-rated health was reported by 38.6%. Their social support score was 4.9 and their sense of coherence score 76 (Table 2). Their total QoL score was 0.73 and the QoL areas score ranged between 0.50 (close relations) and 0.94 (view of daily life). In this cluster 94.4% engaged

“fairly often or often” in “watching television and/or listening to the radio” and 32.2% in “handicraft and/or needlework”. Of those with intermediate present QoL 24.6% reported “rather much or very much” hearing impairment and 5.6% reported being nervous and/or worried (Table 3).

Cluster III (low present QoL) was characterised by a mean age of 86.2 and 63.4% were women. Some 74.6% lived alone and 56.3% were widowed. “Poor or bad” self-rated health were reported by 66.7% and their social support and sense of coherence scores were 4.4 and 65 respectively (Table 2). They had a total QoL score of 0.56 and their QoL areas score ranged between 0.25 (present QoL) and 0.85 (view of daily life). Of those with low present QoL, 90.9% and 17.2% respectively engaged “fairly often or often” in “watching television and/or listening to the radio” and in “handicraft and/or needlework”. They reported “rather much or very much” fatigue (29.6%) and memory problems (5.6%) (Table 3).

Insert Table 3 about here

The respondents in cluster I were younger, more often living together with someone and more often married than those in the other clusters. They reported significantly more “excellent or good” self-rated health and higher social support and sense of coherence scores than the other clusters. Those in cluster II significantly more often had “excellent or good” self-rated health and higher social support and sense of coherence scores than those in cluster III did. No significant differences were found between the clusters with regard to gender (Table 2).

Cluster I had significantly higher scores in total QoL and in the QoL areas present QoL, mental stability, life span QoL, satisfaction with residential environment, psychosomatic health, satisfaction with economic situation, and importance of social activities compared with

clusters II and III. Cluster I had significantly higher scores in close relations, view of daily life, relations to neighbours than cluster III. Cluster II also had significantly higher scores in total QoL and in present QoL, mental stability, life span QoL, satisfaction with residential environment, psychosomatic health, view of daily life, satisfaction with economic situation and importance of social activities than those in cluster III (Table 3).

The respondents in cluster I were significantly more engaged in the activities spending time outdoors and light exercising than the two other clusters. Those in cluster I were also significantly more often engaged in the activity “handicraft and/or needlework” than those in cluster III. The same significant difference was found between clusters II and III. No other significant differences were found concerning the rest of the activities (Table 3).

The respondents in cluster I reported significantly less mobility impairment, fatigue, sleeping problems and being nervous and/or worried than clusters II and III did. Additionally, those in cluster I reported significantly less urinary incontinence than those in cluster II. Those in cluster I also reported significantly less vision impairment and breathlessness during activities and dizziness than those in cluster III did. Cluster II also had significantly fewer troubles with vision impairment, breathlessness during activities, fatigue and being nervous and/or worried than cluster III. No significant differences were found in hearing impairment or memory problems between the three clusters (Table 3).

Discussion

Three groups representing a continuum from high to low present QoL, of whom 33% could be regarded as being at risk of low QoL, were disclosed among independent older people. The three groups were found to be significantly different in terms of their self-rated health, health

problems, everyday activities, SOC and social support. The most distinctive differences were found between those with high (cluster I, 47.8%) and low present QoL (cluster III, 18.4%). Whilst those with intermediate present QoL (Cluster II, 33.8%) differed significantly from both those with high and low present QoL even if they were better off in several respects than those with low present QoL (Table 2 and 3). The results of this study may reflect the ageing process in that the respondents were at different stages of ageing. However, the result may also reflect different adaptive capacities since such as social support, and SOC was also found to differ significantly between them. This seemed especially apparent among those with low present QoL, who also were found to belong to the oldest old (mean age 86.2, SD 5.9).

Methodological considerations

When evaluating the findings of this study, internal and external validity needs to be discussed. One threat to the internal validity in this study may be the data collection. There may be a risk of maturation (Kazdin, 1998), i.e. changes caused by processes within the subjects, as data were collected on two occasions with a period of circa 3-6 months in between. Socio-demographic data were collected on the first occasion whilst the main variables in this study QoL, sense of coherence and self-rated health were collected on the second occasion. However, any changes between the two occasions and their influence on the result may be interpreted as minor.

Another limitation is the study's cross-sectional design which only permits interpreting associations and no causal relationships. A threat to the external validity could be a systematic dropout, and those excluded were significantly older, more often living alone and reported more "fair or poor" self-rated health than those included. This may mean that the external validity of the findings is stronger among the old than among the oldest old (85+). Despite

this, it is worth acknowledging that the mean age (84.6) in this study was reasonably high. The high response rate (80%) at the second data collection taken together with the fact that the sample was randomly selected from rural and urban areas can, however, be viewed as strengthening the external validity of the findings.

As the objective of this study not was hypothesis-driven, the choice to conduct an exploratory analysis i.e. two-step cluster analysis (Hair *et al.*, 1998) was considered as the adequate choice. The analysis offers some advantages as the first step performed is to group cases into pre-clusters while the second step clusters the pre-clusters. In this second stage it can also automatically suggest the proper number of clusters with minimised within-group variation and maximised between-group variation (SPSS Inc, 2003). Thereby the somewhat subjective nature of selecting an optimal cluster solution (Hair *et al.*, 1998) is eliminated. This was considered as strengthening the suggested cluster solution in this study. However, one caveat with the analysis is “The solutions are not unique, as the cluster membership for any number of solutions is dependent upon many elements of the procedure.....” (Hair *et al.*, 1998. p. 474). Therefore, great care is needed in validating and ensuring practical significance of the solutions. According to Hair and colleges (1998) this can be partially dealt with by including and comparing several independent variables for profiling the suggested clusters. Such strategy may help to establish some form of criterion or predictive validity (Hair *et al.*, 1998). The comparative analysis in this paper showed that a majority of the independent variables differed significantly across the clusters. Thus, the investigated variables were interpreted to predict memberships in respective clusters which can be viewed as strengthening the findings.

“Low present QoL”

Contrasting those with high present QoL (cluster I) against those with low present QoL (cluster III), the latter appeared to be in an especially exposed position. Their low present QoL was also accompanied by low scores in almost all of the QoL areas. There may be several explanations for their worse off situation, e.g. a majority were women, they were significantly older, more often widows and lived alone more often than those with high present QoL, factors known to be related to low QoL (Smith & Baltes, 1998; Pinquart & Sörensen, 2001). They represented about a fifth of the sample. This is noteworthy in the sense that they are in a poor situation. Those with low present QoL might have fewer available resources with which to meet everyday demands since they had lower sense of coherence and lower social support (Table 2) than both other groups. Although this study cannot provide knowledge about causality it may well be that fewer opportunities to receive a “helping hand” and fewer abilities to mobilise effective coping resources influence older people’s QoL. It is well known that social support and sense of coherence are related to high QoL. It is not well known, however, how these factors change in the ageing process. Longitudinal studies are required to answer such questions. In comparison with those with intermediate and high present QoL, those with low present QoL also had significantly worse self-rated health and were more troubled by fatigue and immobility (Table 3), which may indicate that they are in the process of developing functional decline. Their lower engagement in physical activities compared with those with high present QoL may support such an interpretation. Fatigue has been shown to be common among older people and a strong predictor for functional decline, although it is still sparsely described (Avlund *et al.*, 2004; Vass *et al.*, 2004). Older people suffering from unattended fatigue and immobility may find themselves in a vicious circle, e.g. too tired to handle everyday life, moving around less, leading to stiffer joints and further immobility. Thus, the findings indicate that those with very low present QoL are hampered not only by

health problems but also by fewer resources to handle demands and a poorer social network. Perhaps their losses were greater than their resources could mediate towards. They may be “caught in the transition” of going from unaided independent living to becoming in need of help. Thus, it seems urgent that these people should be identified and included in preventive programmes targeting not only their physical health but also their personal and social resources as well as their activity problems.

“High present QoL”

Those with high present QoL (cluster I) were the “healthiest and youngest” respondents and represented almost half of the sample (47.8%). Personal and external resources in terms of a high SOC and social support suggest that this group had better coping resources and sufficient emotional and practical support compared to those with low present QoL (Wenger 1991; Antonovsky, 1996). It has been found that those (n=88, mean age 60.8, SD 14.5) reporting a high SOC had a high mental and physical QoL and also had higher coping abilities (Fok, Chair & Lopez, 2003) than those reporting a low SOC. Also they differed in that they scored higher in all QoL areas including economic conditions (Table 3). They may be better equipped to address challenges in everyday life than both other groups were. Although there were few differences in everyday activities between the three groups, those with high present QoL stood out as those being more active in light exercising and time outdoors, indicating more external activities (Table 3). Significantly more of them (88.5%) had “excellent or good” self-rated health and they were less frequently troubled by most of the health problems compared with those with intermediate and low present QoL. Fatigue and mobility impairment were reported by less than 8% of them. “Excellent or good” self-rated health together with the ability to lead a physically and socially active life in old age may counteract dependency and social isolation. Physical exercise and social participation have been shown

(Fone & Lundgren-Lindqvist, 2003; Avlund *et al.*, 2004) to promote older people's QoL and health. This group seemingly had the physical capacity to engage in activities that are known to promote health and QoL. They shared several features with what is most often described as "successful ageing" (Baltes & Baltes, 1993; Rowe & Kahn, 1998). Three main components – avoiding diseases, active engagement with life and a maintained high physical and cognitive functioning – are corroborated as essential components for successful ageing (Rowe & Kahn, 1998). Successful ageing as an effect of personal resources puts the responsibility on the individual rather than on the interaction between individuals and society. Thus, successful ageing, can be debated as a model to understand ageing and it still remains to be tested. It may well be that they can still balance the losses with the resources available. Their much better QoL, active life, social and personal resources may be due to the fact that they are younger (mean age 83.1, SD 5.1) and at an earlier stage of their ageing process. It may also be that there was a balance between goals, gains and losses, perhaps making them better equipped to handle challenges in their everyday life than the other two groups were. Even so they may well benefit from preventive activities, for instance through group-based community information with advice on health and physical activity, whilst those with low or intermediate present QoL may benefit more from an individual approach.

“Intermediate present QoL”

The findings of this study indicate that with about half of the sample at risk of or with low present QoL further research exploring these people's QoL and everyday life seems as important. It may well be that those with intermediate present QoL, who represented a third of the sample (33.8%), are those at highest risk of low QoL and thus important to identify and address in preventive interventions. They had better self-rated health, were less frequently troubled by health problems e.g. fatigue and mobility impairment but also better off in most of

the QoL areas and sense of coherence. Even so, they differed significantly more from those with high present QoL than from those with low present QoL. They were, for instance, equally physically active in outdoor activities as those with low present QoL, had similar hearing impairment and urinary incontinence but were less fatigued and immobilised than those with low present QoL. The reason for the intermediate position of this group as regards present QoL cannot be explained in causal terms. Although they had significantly lower SOC than those with high present QoL they were found to have a higher SOC (76, SD 9.6) in comparison with a younger (range 25–74 years) Swedish population-based sample (n=1254) where the participants had a SOC of 68.87 (Nilsson *et al.*, 2003). This implies that their resources for handling demands and losses may be better than those of people with low present QoL, but perhaps their resources did not differ much from those with high present QoL. It may be because they have fewer demands to cope with due to decreasing health. Thus, their demands and resources may be more in balance even though their age (mean age 85.7, SD 6.0) did not differ significantly from those with low present QoL. The answer to how demands and resources relate to each other in the ageing process in terms of cause and effect requires longitudinal studies. However, the fact that the level of social support and SOC followed the same curve as QoL may indicate that some are more vulnerable to low present QoL given the same health. This group of people would probably benefit from individual preventive programmes especially addressing immobility and fatigue and perhaps thereby encourage their ability to lead an active life.

Conclusions

Altogether, the findings indicate that various degrees of present QoL will be accompanied by other promoting and hindering features influencing older people's everyday life and their QoL. To be able to intervene effectively in this heterogeneous group of older people, a need

to develop preventive interventions on different levels appears especially important. Also comprehensive programmes targeting weaker resources, i.e. low social support and sense of coherence as well as health problems, seems essential and a way to postpone functional decline and thereby promote their QoL. The findings may well reflect the ageing process and the diverse characteristics of older people in an age span as wide as 75–100 years old. Preventive programmes targeting older populations need to acknowledge their different needs and resources. It may also well be that personal resources, i.e. a high sense of coherence, and external resources, i.e. adequate social support, counteract losses in other areas such as failing health and limitations due to health problems. The findings may also point in the direction that social resources and personal strength (sense of coherence) are sensitive to declining functional ability. When adding up the findings from this study, they indicate that it can be beneficial to develop interdisciplinary i.e. health and social care programmes as these may have the possibility to offer a wider variety of interventions and services' targeting more aspect of older peoples lives.

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References

- Altman DG. (1997) *Practical statistics for medical research*. London: Chapman & Hall.
- Antonovsky A. (1987) *Unravelling the Mystery of Health*. San Francisco: Jossey-Bass.
- Antonovsky A. (1993) The structure and properties of the sense of coherence scale. *Social Science Medicine*. **36**, 6, 725-733.
- Antonovsky A. (1996) The Sense of Coherence: An historical and future perspective. *Israeli Journal of Medicine Science*, **32**, 170-178.
- Avlund K, Lund R, Holstein BE, Due P. (2004) Social relations as determinants of onset of disability in aging. *Archives of Gerontology and Geriatrics* **38**, 85-99.
- Baltes PB, Baltes MM. (1993). *Successful Aging: Perspectives from the behavioural sciences*. Cambridge University Press, Cambridge
- Beckstead JW. (2002) Using hierarchical cluster analysis in nursing research. *Western Journal of Nursing Research* **24**, (3) 307-319.
- Bond J, Briggs R, Coleman P. (1998) *The study of ageing*. In Bond J, Coleman P, Peace S. editors. *Ageing in Society: An Introduction to Social Gerontology*. 2nd ed. London: Sage Publications, 19-40.
- Borglin G, Jakobsson U, Edberg A-K, Hallberg IR. (2005) Self-reported health complaints and their prediction of overall and health-related quality of life among elderly people. *International Journal of Nursing Studies*. **42**, (2), 147-158.
- Bowling A. (1995) What things are important in people's lives? A survey of the public's judgements to inform scales of health related quality of life. *Social Science and Medicine* **41**, (10), 1447-1462.
- Bowling A, Fleissig A, Gabriel Z, Banister D, Dykes J, Dowding LM, Sutton S, Evans O. (2003) Let's ask them: A national survey of definitions of quality of life and its enhancement among people aged 65 and over. *International Journal of Aging and Human Development* **56**, 269-306.
- Brayne C, Matthews FE, McGee M, Jagger C. (2001) Health and ill-health in the older population in England and Wales. The Medical Research Council Cognitive Function and Ageing Study (MRC CFAS). *Age and Ageing* **30**, 53-62.
- Brown K, Boot D, Groom L, Williams EI. (1997) Problems found in the over-75s by the annual health check. *British Journal of General Practice*, **47**, 31-35.
- Browne JP, O'Boyle CA, McGee HM, Joyce CRB, McDonald NJ, Malley KO, Hiltbrunner B. (1994) Individual quality of life in the healthy elderly. *Quality of Life Research* **3**, 235-244.
- Bryant LL, Beck A, Fairclough DL. (2000). Factors that contribute to positive perceived health in an older population. *Journal of Aging and Health* **12**, (2), 169-192.
- Byles JE. (2000) A thorough going over: Evidence for health assessments for older persons. *Australian and New Zealand Journal of Public Health* **24**, (2), 117-124.
- Cronbach LJ. Coefficient alpha and the internal structures of tests. (1951) *Psychometrika* **3**, 297-334.
- Dempster M, Donnelly M. (2000). How well do elderly people complete individualised quality of life measures: An exploratory study. *Quality of Life Research* **9**, 369-375.
- Elkan R, Kendrick D, Dewey M, Hewitt M, Robinson J, Blair M, Williams D, Brummel K. (2001) Effectiveness of home based support for older people: Systematic review and meta-analysis. *British Medical Journal* **323**, 1-9.
- Farquhar M, Bowling A. (1993) Functional ability of very elderly people. *Nursing Standard* **8**, (7) 31-36.
- Faulkner M, Davies S. (2005) Social support in the healthcare setting: the role of volunteers. *Health and Social Care in the Community* **13**, (1), 38-45.

- Fok SK, Chair SY, Lopez V. (2003). Sense of coherence, coping and quality of life following a critical illness. *Journal of Advanced Nursing* **49**, (2) 173–181.
- Fone S, Lundgren-Lindqvist B. (2003). Health status and functional capacity in a group of successfully ageing 65–85-year-olds. *Disability and Rehabilitation* **25**, (18), 1044-1051.
- Fries JF. (2002) Successful aging – an emerging paradigm of gerontology. *Clinics in Geriatric Medicine* **18**, 371-382.
- Godfrey M. (2001) Prevention: developing a framework for conceptualizing and evaluating outcomes of preventive services for older people. *Health and Social Care in the Community* **9**, (2), 89-99.
- Hagberg M, Hagberg B, Saveman B-I. (2002) The significance of personality factors for various dimensions of life quality among older people. *Aging and Mental Health* **6**, (2), 178-185.
- Hair JF, Anderson RE, Tatham RL, Black WC. (1998). *Multivariate data analysis*. 5th edition. New Jersey, Prentice-Hall Incorporated.
- Holmes S. (2005) Assessing quality of life: Reality or impossible dream? *International Journal of Nursing Studies* **42**, 493-501.
- Idler EL, Kasl SV. (1995). Self-ratings in health: Do they also predict change in functional ability? *Journal of Gerontology: Social Sciences* **50B**, (6), 344–353.
- Kazdin AE. (1998) *Research design in clinical psychology*. 3rd edition. Boston: Allyn & Bacon.
- Lagergren M. (2002) The system of care for frail elderly persons: The case of Sweden. *Aging Clinical and Experimental Research* **14**, (4), 252-257.
- Lawton MP. (1975). The Philadelphia geriatric center morale scale: A revision. *Journal of Gerontology* **30**, (1), 85–89.
- Neugarten BL, Havighurst RJ, Tobin SS. (1961). The measurement of life satisfaction. *Journal of Gerontology* **16**, 134–143.
- Nilsson B, Holmgren L, Stegmyr B, Westman G. (2003). Sense of coherence – stability over time and relation to health, diseases, and psychosocial changes in a general population: A longitudinal study. *Scandinavian Journal of Public Health* **31**, 297–304.
- Nordbeck B, Hagberg B, Jadbäck G, Johansson B. (1992) *Stroke patients in Sweden*. In XV World Congress of Gerontology. Budapest, Hungary.
- Palos GR, Mendoza TR, Cantor SB, Aday LA, Cleeland CS. (2004) Perceptions of analgesic use and side effects: What the public values in pain management. *Journal of Pain and Symptom Management* **28**, (5), 460-473.
- Pinquart M, Sörensen S. (2001) Gender differences in self-concept and psychological well-being in old age: A meta analysis. *Journal of Gerontology: Psychological Sciences* **56**, 195-213.
- Raphael D, Brown I, Renwick R, Cava M, Weir N, Heatcote K. (1997) Measuring the quality of life of older persons: A model with implications for community and public health nursing. *International Journal of Nursing Studies* **34**, 231-239.
- Rowe, J. W. Kahn, R. L. (1998) *Successful aging: The MacArthur Foundation study*. New York: Dell Publishing. 36-52.
- Rubenowitz S. (1980). *Method development for mapping psychosocial factors to consider with regional development planning*. Rapport nr. 3. Psykologiska Institutionen. Göteborgs Universitet. [In Swedish]
- Smith J, Baltes MM. (1998) The role of gender in very old age: Profiles of functioning and everyday life patterns. *Psychology and Aging* **13**, (4), 676-695.
- SPSS Inc. (2003). SPSS for Windows statistical software, Release 12.0.1. 2. Chicago, Illinois.

- Stenzelius K, Mattiasson A, Rahm Hallberg IL, Westergren A. (2004) Symptoms of urinary and faecal incontinence among men and women 75+ in relation to health complaints and quality of life. *Neurourology and Urodynamics* **23**, 211-222.
- Stenzelius K, Westergren A, Thorneman G, Hallberg IL. (2005) Patterns of health complaints among people 75+ in relation to quality of life and need of help. *Archives of Gerontology and Geriatrics* **40**, (1), 85-102.
- Stuck AE, Minder CE, Peter-Wuest I, Gillmann G, Egli C, Keselring A, Leu RE, Beck JC. (2000) A randomised trial of in-home visits for disability prevention in community dwelling older people at low and high risk for nursing home admission. *Archives of Internal Medicine* **160**, 977-986.
- Sullivan M, Karlsson J, Taft C. (1997). SF-12 *Health questionnaire*. Swedish Manual. Sektionen för vårdforskning, Medicinska Fakulteten. Göteborgs Universitet. Göteborg. [In Swedish]
- Underhill Motzer S, Stewart BJ. (1996) Sense of Coherence as a predictor of quality of life in persons with coronary heart disease surviving cardiac arrest. *Research in Nursing & Health* **19**, 287-298.
- van Haastregt JC, Diederiks JP, van Rossum E, de Witte LP, Crebolder HF. (2000) Effects of preventive home visits to elderly people living in the community: Systematic review. *British Journal of Medicine* **320**, 754-758.
- Vass M, Avlund K, Kvist K, Hendriksen C, Andersen CK, Keiding N. (2004) Structured home visits to older people: Are they only of benefit for woman? A randomised controlled trial. *Scandinavian Journal of Primary Health Care* **22**, 106-111.
- Vernon S, Ross F, Gould MA. (2000) Assessment of older people: Politics and practice in primary care. *Journal of Advanced Nursing* **31**, 282-287.
- Ware JE, Sherbourne CD. (1992). The MOS 36-item short-form health survey (SF-36) conceptual framework and item selection. *Medical Care* **30**, (6), 473-481.
- Wenger C. (1991) A network typology: From theory to practice. *Journal of Aging Studies* **5**, (2), 147-162.

Table 1. Description and comparison between those included in and excluded from the analysis: (*t*) Student's *t*-test; (χ^2) Pearson chi-squared test; (M-W) Mann-Whitney *U*-test.

Variables	Included in the analysis n=385	Excluded from the analysis n=77	Comparison between included and excluded respondents		
			Test statistics	d.f.	<i>p</i> -value
Age (mean (SD))	84.6 (5.7)	86.3 (5.4)	<i>t</i> = -2.43	460	0.015
Female (%)	54.8	63.6	χ^2 = 2.03	1	0.154
Marital status (%)			χ^2 = 1.42	3	0.699
– Married	41.1	35.1			
– Widow/widower	46.1	50.6			
– Divorced	6.0	5.2			
– Single	6.8	9.1			
Living alone (%)	56.1	61	χ^2 = 0.63	1	0.425
Location (%)			χ^2 = 0.29	1	0.586
– City, village	81.8	84.4			
– Hamlet, countryside	18.2	15.6			
Self-rated health – SRH (%) ^a			M-W		0.028
– Excellent	7.9	9.2	Z = -2.20		
– Very good	18.5	11.8			
– Good	43.0	31.6			
– Poor	25.3	39.5			
– Bad	5.3	7.9			
Social support summary scores (mean (SD)) ^b	4.98 (0.8)	4.8 (0.8)	<i>t</i> = 1.30	447	0.193
Sense Of Coherence SOC (mean (SD)) ^c	77 (11)	75 (12)	<i>t</i> = 0.77	371	0.439
Total QoL – LGC (mean (SD)) ^d	0.75 (0.13)	–	–		–

^a 6 missing among those included and 1 missing among those excluded.

^b 9 missing among those included and 4 missing among those excluded.

^c 55 missing among those included and 34 missing among those excluded.

^d 65 missing among those included and 77 missing among those excluded.

Table 2. Description and comparisons between the three clusters: (*F*) one-way analysis of variance; (χ^2) Pearson chi-squared test.

Variables	Cluster I n=184	Cluster II n=130	Cluster III n=71	Comparisons between clusters			
				Test statistic	d.f.	<i>p</i> -value between clusters*	
Age (mean (SD))	83.1 (5.1)	85.7 (6.0)	86.2 (5.9)	<i>F</i> = 11.99	2	<0.001	A, B
Female (%)	48.4	59.2	63.4	$\chi^2 = 6.21$	2	0.045	–
<i>Marital status</i> (%)				$\chi^2 = 29.46$	6	<0.001	A, B
– Married	54.1	31.5	25.4				
– Widow/widower	35.0	56.2	56.3				
– Divorced	5.5	3.8	11.3				
– Single	5.5	8.5	7.0				
Living alone (%)	42.9	64.6	74.6	$\chi^2 = 26.69$	2	<0.001	A, B
Excellent and good SRH/poor and bad SRH (%)	88.5/11.5	61.4/38.6	33.3/66.7	$\chi^2 = 77.58$	2	<0.001	A, B, C
Social support summary score (mean (SD))	5.3 (0.7)	4.9 (0.8)	4.4 (0.7)	<i>F</i> = 30.21	2	<0.001	A, B, C
Sense of Coherence – SOC (mean (SD))	81.6 (7.4)	76.0 (9.6)	65.0 (12.9)	<i>F</i> = 67.48	2	<0.001	A, B, C
Total QoL – LGC (mean (SD))	0.84 (0.06)	0.73 (0.07)	0.56 (0.10)	<i>F</i> = 281.42	2	<0.001	A, B, C

Significant differences between: A=Cluster I–II; B= Cluster I–III; C= Cluster II–III.

Missing for SOC scores was: Cluster I n= 18, Cluster II n= 21, Cluster III n= 16.

Missing for LGC scores was: Cluster I n= 26, Cluster II n= 23, Cluster III n= 13

Missing for remaining variables ranged between 1 and 8 respondents in respective cluster.

* A reduced significance level (0.017) is used in the post-hoc analysis

Table 3. Description and comparison of QoL, everyday activities and health problems between the three clusters: (*F*) one-way analysis of variance; (K-W) Kruskal-Wallis test.

Variables	Cluster I	Cluster II	Cluster III	Comparisons between clusters			
				Test statistic	d.f.	<i>p</i> -value between clusters*	
<i>Quality of life factors LGC (mean (SD))</i>	n=184	n=130	n=71				
– Present Quality of life	0.80 (0.09)	0.53 (0.08)	0.25 (0.10)	<i>F</i> = 1041.43	2	<0.001	A, B, C
– Mental stability	0.84 (0.15)	0.74 (0.20)	0.54 (0.26)	<i>F</i> = 61.12	2	<0.001	A, B, C
– Life span Quality	0.95 (0.10)	0.89 (0.16)	0.71 (0.27)	<i>F</i> = 50.32	2	<0.001	A, B, C
– Satisfaction with residential environment	0.97 (0.07)	0.93 (0.12)	0.84 (0.16)	<i>F</i> = 37.01	2	<0.001	A, B, C
– Psychosomatic health	0.89 (0.17)	0.82 (0.22)	0.69 (0.27)	<i>F</i> = 23.08	2	<0.001	A, B, C
– Close relations	0.59 (0.33)	0.50 (0.33)	0.42 (0.34)	<i>F</i> = 25.50	2	0.001	B
– View of daily life	0.95 (0.09)	0.94 (0.11)	0.85 (0.19)	<i>F</i> = 82.56	2	<0.001	B, C
– Relations to neighbours	0.78 (0.14)	0.75 (0.14)	0.70 (0.15)	<i>F</i> = 7.04	2	0.001	B
– Satisfaction with economic situation	0.91 (0.13)	0.85 (0.16)	0.74 (0.23)	<i>F</i> = 15.04	2	<0.001	A, B, C
– Importance of social activities	0.73 (0.13)	0.61 (0.16)	0.44 (0.18)	<i>F</i> = 6.63	2	<0.001	A, B, C
<i>Everyday activities (“Fairly often and often” %)</i>				K-W			
– Socialising with friends, family and/or relatives	70.9	68.6	61.8	$\chi^2 = 4.87$	2	0.087	–
– Spending time outdoors, travel and/or outings	57.0	35.8	27.7	$\chi^2 = 29.52$	2	<0.001	A, B
– Light exercising	86.9	67.8	53.0	$\chi^2 = 34.93$	2	<0.001	A, B
– Housekeeping and/or housework	67.4	71.3	73.1	$\chi^2 = 0.49$	2	0.780	–
– Listening to music	71.2	60.8	64.2	$\chi^2 = 4.69$	2	0.096	–
– Handicraft and/or needlework	42.6	32.2	17.2	$\chi^2 = 19.40$	2	<0.001	B, C
– Watching television and/or listening to the radio	96.7	94.4	90.9	$\chi^2 = 2.46$	2	0.291	–
– Being by oneself “quietly meditating/contemplating”	46.2	59.9	66.2	$\chi^2 = 7.40$	2	0.025	–
– Reading newspaper and/or books	92.1	91.0	88.4	$\chi^2 = 2.45$	2	0.293	–
<i>Health problems (“No not at all and yes, a little” %)</i>				K-W			
– Hearing impairment	83.2	75.4	73.2	$\chi^2 = 2.53$	2	0.282	–
– Vision impairment	93.7	89.6	80.2	$\chi^2 = 13.30$	2	0.001	B, C
– Memory problem	92.4	86.5	94.4	$\chi^2 = 6.65$	2	0.036	–
– Dizziness	94.2	90.5	74.7	$\chi^2 = 12.95$	2	0.002	B
– Urinary incontinence	95.9	88.8	88.7	$\chi^2 = 7.58$	2	0.023	–
– Mobility impairment	92.5	83.4	74.6	$\chi^2 = 30.09$	2	0.001	A, B
– Breathlessness during activities	95.4	91.3	80.3	$\chi^2 = 19.79$	2	<0.001	B, C
– Fatigue	98.8	89.7	70.4	$\chi^2 = 51.39$	2	<0.001	A, B, C
– Sleeping problems	91.9	83.3	74.6	$\chi^2 = 20.08$	2	<0.001	A, B
– Being nervous/worried	98.3	94.4	81.7	$\chi^2 = 47.76$	2	<0.001	A, B, C

Significant differences between: A=Cluster I-II; B= Cluster I-III; C= Cluster II-III.

Missing for the QOL factors ranged between Cluster I n=1-11, Cluster II n=1-9, Cluster III n=1-5.

Missing for the everyday life activities ranged between: Cluster I n= 2-17, Cluster II n= 5-12, Cluster III n= 2-7.

Missing for the health problems was: Cluster I n= 11, Cluster II n= 4, Cluster III n= 0.

*A reduced *significance level* (0.017) is used in all of the post-hoc analyses