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Determinants of quality of life of elderly Nigerians: results from the Ibadan Study of Ageing

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Abstract

Background—Little is known about factors that determine the QoL of elderly persons living in developing societies undergoing rapid social changes.

Method—A representative sample of elderly Nigerians, aged 65 years and over (n= 2152), was assessed for QoL using the World Health Organization Quality of Life instrument (WHOQoL-Bref). Other than sociodemographic factors, respondents were also evaluated for major depressive disorder, physical conditions as well as for social network, support and engagement. Using linear regression modeling, these factors were explored for their ability to predict the physical, psychological, social and environmental domains of QoL.

Results—Economic status was the most consistent predictor of the four domains of QoL, with the coefficients ranging between 1.0 and 1.68 ($p < 0.001$ in every instance). Among health variables, functional disability (range: 7.07 – 19.86) and self-rated overall health (range: 7.89 – 18. 42) were the most salient. Participation in community activities (range 7.74 – 17.48) was the most consistent social predictor. As a group, social factors, especially those relating to social support and participation, were the strongest determinants of QoL.

Conclusion—Even though health factors are important, social factors, in particular those relating to the quality of social support and participation, are the most important predictors of QoL.

Introduction

Old age often brings about health problems and decreasing functional capacity which may affect the sense of wellbeing of an individual. In this regard, the goal of health for the elderly in the society may not be that of freedom from diseases but the possibility of having a good life despite illness and decreasing capacities (Lawton, 1991; Nordenfelt, 1991b; Sarvimaki and Stenbock-Hult, 2000). Feelings about life are subjective and what is considered as important for wellbeing by one person may not be so regarded by another. Also, a chronic health condition occurring in the setting of a developed country may have a lower impact on the QoL the patient than the same disease would have in a low income country where resources to ameliorate disability may be scarce. The subjective nature of QoL and the contextual nature of its assessment inform the World Health Organization's definition of it as: "an individual's perception of his/her position in life in the context of the culture and value systems in which he/she lives, and in relation to his/her goals, expectations, standards and concerns" (The WHOQOL Group, 1995). Thus QoL reflects a

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broad view of subjective wellbeing and life satisfaction that encompasses mental and physical health, material wellbeing, interpersonal relationship within and without the family, work and activities within the communities, personal development and fulfillment and active recreation (Niemi et al., 1988).

Studies conducted among groups of elderly persons have shown that QoL and subjective evaluation of life satisfaction are determined by several factors(Jakobsson et al., 2007; Patel et al., 2007). Other than socio-demographic features such as age and financially status, health, including functional disability, and social support and networks are often found to be important in elderly persons assessment of their QoL. In general, the common observation is that elderly persons value independence, financial security, emotional support and social integration(Bowling, 1994; Low and Molzahn, 2007; Richard et al., 2005; Xavier et al., 2003). An important consideration in studying the factors associated with the QoL of elder persons is the multidimensional nature of the construct and the possibility that determinants of one dimension may be different from those of another dimension. For example, a study among elderly patients with stroke suggests that the determinants of health related QoL vary depending on whether physical or psychological aspects are the focus(Patel et al., 2007). Reviewing current approaches to the assessment of QoL, Hickey and colleagues advocate a broadening of the scope of the measurement instruments to cover various aspects of potential importance to elderly persons(Hickey et al., 2005).

Other than health problems and functional impairments to which most elderly persons are vulnerable (Clark and Siebens, 1993), old age in Nigeria may predispose to some social and economic problems. Poverty is rife the country and elderly persons may be more at risk since they are no longer in the economically active phase of life and there is no national social security to provide economic buffer in old age. Access to health care is severely limited both by paucity of health facilities and manpower and by out-of-pocket payment arrangement. Social network is dwindling and traditional family support is decreasing as urbanization and migration take young members of the family away. Also, social changes are affecting the position of the elderly in the society and leading to a reduction in their social status and influence in the community(Gureje and Oyewole, 2006). All of these factors may affect the QoL of elderly persons. However, their relative importance is unknown and, given that QoL is a multi-factorial experience(Hickey et al., 2005) with sometimes paradoxical import(Albrecht and Devlieger, 1999), it remains to be determined how demographic, social and health factors relate to different aspects of the QoL of elderly Nigerians.

This paper reports the results of a survey conducted among elderly persons residing in the south-west and north-central parts of Nigeria. We examined the association of demographic, economic, health and social factors with the QoL of elderly persons. We were particularly interested in examining the relative salience of social factors, compared to economic and health factors, to different aspects of QoL of elderly persons living in a society undergoing rapid social changes.

Method

Details of the method of the survey have been provided elsewhere (Gureje et al., in press; Gureje et al., 2006b) and only a brief account will be given here.

Sample

The Ibadan Study of Aging (ISA) is a community based longitudinal survey of the profile and determinants of successful aging. The study is being conducted in the Yoruba-speaking areas of Nigeria, consisting of eight contiguous states in the south-western and north-central

regions (Lagos, Ogun, Osun, Oyo, Ondo, Ekiti, Kogi and Kwara). These states account for about 22% of the Nigerian population (approximately, 25 million people). The baseline survey was conducted between November 2003 and August 2004.

Respondents, aged 65 years and over, were selected using a multi-stage stratified area probability sampling of households. Respondents were informed about the study, invited to participate, but also assured of their right to decline. Participants were those who provided consent, mostly verbal, either because of illiteracy or by choice, or signed, before interviews were conducted. On the basis of this selection procedure, face-to face interviews were carried out on 2152 respondents, giving a response rate of 74.2%. Non-response was predominantly due to non-availability after repeated visits (14%), interviewers unable to trace the original address (4%), death (3%), and physical incapacitation (2%) and rarely due to refusal (2%). The survey was approved by the University of Ibadan/University College Hospital, Ibadan Joint Ethical Review Board.

Measures

Quality of Life—All respondents completed the World Health Organization Quality of Life assessment instrument, WHOQOL-Bref (The WHOQOL Group, 1996). The WHOQOL-Bref was developed to be a cross-culturally applicable tool for the subjective evaluation of health-related QoL(The WHOQOL Group, 1998). Designed in diverse cultural settings, including one in Sub-Saharan Africa(The WHOQOL Group, 1998), it has been shown to be a valid measure of QoL in the elderly (Naumann and Byrne, 2004). Designed as a self-rating instrument that can also be interviewer-administered, the WHOQoL-Bref rates QoL in four domains: physical, psychological, social, and environmental. In the current sample, it has an excellent internal reliability (Cronbach alpha = 0.86).

Assessment for Depression—Depression was assessed using the World Mental Health Survey version of the WHO Composite International Diagnostic Interview, version 3 (CIDI), a fully structured diagnostic interview (Kessler and Ustun, 2004). Diagnosis was based on the criteria of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) (American Psychiatric Association, 1994).

Functional Disability—All respondents were assessed for functional limitations in activities of daily living (Katz et al., 1963) and instrumental activities of daily living (Nagi, 1976). Each of the activities in the two domains was rated : 1) can do without difficulty, 2) can do with some difficulty, 3) can do only with assistance, or 4) unable to do. In this report, any respondent with a rating of 3 or 4 on any item was classified as disabled.

Cognitive Assessment—Assessment of cognition was performed using the adapted 10-Word Delay Recall Test (10-WDRT). Adapted from the Consortium to Establish a Registry of Alzheimer's Disease (CERAD) ten-word learning list(Welsh, 1994) the10-WDRT is a test of memory. The adapted 10-WDRT used in this survey is a component of the battery of tests included in the Indianapolis-Ibadan Dementia Project (IIDP), a community-based study comparing the prevalence and incidence of dementia among Yoruba Nigerians and African-Americans aged 65 years and above (Hendrie et al., 2001; Hendrie et al., 1995). Drawing on data derived from the Ibadan component of that project, we used logistic regression models to classify cognitively impaired from normal subjects based on the performance on the 10-WDRT after adjusting for gender and age. The results indicated that, in this setting, the10-WDRT has a sensitivity of 76.9% and a specificity of 73.5% at a cut-off score threshold of 1/2.

Chronic health conditions—A checklist of chronic physical and pain conditions was included in the ISA. Respondents were asked if they had any chronic respiratory conditions (asthma, tuberculosis, other lung disease), digestive conditions (irritable bowel syndrome, ulcer), cardiovascular conditions (high blood pressure, heart disease, heart attack, stroke), cancer, diabetes, or epilepsy Respondents were asked whether they had experienced each of the symptom-based conditions in the previous 12 months. The checklist also ascertained the presence of any chronic pain. These included back or neck pain, arthritis, frequent headaches, and a general category of chronic pain in any other body parts. Each respondent was also asked to rate their overall health. This was coded as excellent, good, fair, or poor.

Social network and support (Carver, 1997; Kessler and Ustun, 2004)—Social network was assessed with the CIDI. The relevant items enquire about the frequency of respondent's contact with family members who do not live with the respondent and frequency of contact with friends. In this report, we have dichotomize the responses to contacts that are less than once in six months to those more than once in six months. Respondents were also asked about receipt of emotional support and of instrumental support in the prior one month (dichotomized as often vs. rarely or never) (Carver, 1997). Participation in family activities (such as family meals, ceremonies, etc) and participation in community activities (such as meetings, ceremonies, etc) were rated using items from the WHO Disability Assessment Schedule. The responses to these items were dichotomized as often vs. rarely or never.

All the instruments were translated using iterative back-translation method. As part of the translation process, all the instruments used were subjected to cultural adaptation.

Economic status was assessed by taking an inventory of household and personal items such as chairs, clock, bucket, radio, television set, fans, stove or cooker, car, telephone, etc. The list was composed of 21 such items. This is a standard and validated method of estimating economic wealth of elderly persons in low income settings(Ferguson et al., 2003). Respondents' economic status is categorized by relating each respondent's total possessions to the median number of possessions of the entire sample. Thus, economic status is rated low if its ratio to the median is 0.5 or less, low-average if the ratio is 0.5 – 1.0, high-average if it is 1.0 – 2.0, and high if it is over 2.0. Residence was classified as rural (less than 12,000 households), semi-urban (12,000 – 20,000 households) and urban (greater than 20,000 households).

We assessed the association of demographic, health, and social factors with the domains of QoL using linear regression(Montgomery et al., 2001) in which demographic, health, and social factors were treated as predictors. The first set of analysis sought to answer the question: within a cluster of demographic, health, or social factors, which factors are significantly related to the QoL of elderly persons in each of the domains of the WHOQoL-Bref. We expect that factors in each cluster are likely to be related one to the other. That is, for example, functional disability is likely to be related to self-reported overall health as well as to self-reported chronic pain. For the analysis therefore, the factors in each cluster were all entered in the regression equation. Each factor is therefore examined for its association with the domain of QoL after the effects of the other factors in that cluster have been controlled for. The analysis was repeated for the physical, psychological, social, and environmental domains of QoL as assessed by the WHOQOL-Bref. In the final model, all variables that were significantly associated with each domain of QoL in the three clusters (demographic, health, and social) were entered into the regression equation. Here, the intention is to see which factors will remain significantly associated with QoL after all other variables are controlled for. For this analysis, the scores on the WHOQoL-Bref domains were converted to percentages by dividing the score of the respondent by the total possible

score on that domain and multiplying by 100. In this way, the coefficients so derived can be interpreted as the adjusted mean percent difference between persons with insomnia and persons without.

Results

The effects of demographic factors, health and social support on QoL on the four domains of WHOQoL-Bref are shown in tables 1-4. We present the unstandardized regression coefficients, the standard errors of the coefficients and the values of two-tailed probability tests.

Physical Domain (Table 1)

Age and economic status were the only two demographic factors significantly related to the physical domain of QoL, with economic status being the stronger factor. Gender, marital status, educational level and residence were unrelated to this domain of QoL. Other than dementia, all health items were significantly related to this domain. Functional disability and self-rated health bore particularly strong relationships to the physical domain of QoL. Among social factors, participation in community activities was the most strongly related factor to this domain of QoL, followed by contact with family members. Neither the availability of instrumental support nor that of emotional support was a significant predictor. As a group, health factors were the strongest determinants of the physical domain of QoL followed by social factors.

Psychological Domain (Table 2)

The pattern of associations of demographic, health as well as social factors with this domain is broadly similar to their associations with the physical domain. Here, age, education as well as economic status were significantly related to this domain of QoL. All health factors, to varying extent, were predictive of QoL, with self-rated overall health, functional disability and depression being the strongest predictors. Among social factors, participation in community activities and contact with family members were the two most strongly related factors. Here again, availability of instrumental support was unrelated to QoL. As a group, social factors were clearly the strongest predictors of this domain of QoL. Factors such as being in contact with family members and participation in community activities were much more strongly related to psychological domain of QoL than was elderly persons' status in regard to pain or self-reported chronic medical conditions.

Social Domain (Table 3)

Other than sex and education, all other demographic features were significant predictors of elderly persons' social QoL. Among health factors, disability and self-reported overall health were the only significant correlates. None of pain, self-reported chronic medical conditions, cognitive impairment or depression made independent contributions to this domain of QoL. All social factors were predictive of social QoL, except, surprisingly, contact with family members and availability of instrumental support. The most important factors contributing to QoL in the social domain were contact with friends, participation in community activities, availability of emotional support, and participation in family activities. As determined by the values of the coefficients, social factors were more strongly related to this domain of QoL than either demographic or health factors.

Environmental domain

Education, economic status and, not surprisingly, place of residence were the demographic determinants of QoL in this domain. Economic status and place of residence were the major

correlates. In this domain, dementia emerged for the first time as a determinant of QoL. However self-reported overall health and functional disability were the more strongly related health factors. Other than contact with friends and availability of instrumental support, all the assessed social factors were significantly related to QoL in this domain. Indeed, across the spectrum of factors examined, social factors had the strongest association with the environmental domain of QoL. Specifically, contact with family members and participation in community activities were the most strongly related factors for this domain of QoL.

DISCUSSION

This paper reports the results of a large community-based study of determinants of QoL of a regionally representative sample of elderly persons in Nigeria. The population of the Yoruba-speaking people of Nigeria is over 25 million, representing about 22% of the Nigerian population. This survey of health, wellbeing, and quality of life is therefore, to our knowledge, the largest survey of the elderly in Sub-Saharan Africa.

Our findings confirm the multifactorial determinants of QoL(Ardelt, 1997; Hickey et al., 2005; Newsom and Schulz, 1996). The results demonstrate that QoL of elderly persons is determined by demographic, health, and social factors. Among demographic factors, economic status, place of residence and age were the most consistent correlates of QoL. Economic status was significantly related to all of four domains of the QoL examined, age to three and place of residence related to two. Among health factors, self-reported overall health and functional disability were the strongest correlates of QoL, with both factors being predictive of all the four domains. Self-reported chronic medical conditions and depression were associated with physical and psychological domains while cognitive impairment was related to the psychological and environmental domains. Among social factors, participation in community activities was related to all domains of QoL while contact with family, participation in family activities, and availability of emotional support were related to three of the domains Contact with friends was a predictor of psychological and social aspects of QoL. Availability of instrumental support was not a significant correlate of any domain of QoL in this sample of elderly persons. In general, and judging by the strength of the associations as indicated by the values of the regression coefficients, social factors were the strongest determinants of QoL in the psychological, social and environmental domains and were next in importance to health factors for the physical domain. Demographic factors were, as a group, much less related to QoL than health and social factors.

In considering the results of our study, certain caveats are necessary. One, we have examined concepts with often overlapping meanings. For example, the psychological domain of QoL taps into emotional feelings that overlap with those of major depressive disorder and some items in the physical domain elicit subjective reports that are related to functional role impairment. The ensuing circularity, even though inevitable in the assessment of subjective QoL(Flavio et al., 2003; Gill and Feinstein, 1994; Hunt, 1997), nevertheless requires bearing in mind. In this survey, we have used multiple health and social assessments and the consistency of the findings that we report overrides the redundancy that may be due to this circularity. Two, chronic health conditions were elicited by self-report and may have been affected by under-reporting. This is of course likely to be the case in a setting where access to care is limited and disorders such as hypertension and diabetes might be undetected in their sufferers. Three, in line with the recommended approach for rating subjective QoL, information for the rating of WHOQoL was obtained principally from the elderly persons. In persons with moderate to severe cognitive impairment as well as those with depression, such information may have been affected by subject's mental state. However, in cases where such impairment was noticed, interviewers were encouraged to seek validating support information from next of kin. Four, the results

presented here are from a cross-sectional survey of elderly persons. Even though we have used the term “determinants” and “predictors” in our report, we are unable to assert the direction of causality for many of the associations that we have observed.

We found that economic status was an important correlate of QoL of the elderly in our environment. Even though rich in mineral and human resources, Nigeria is a poor country. The effect of that poverty is more likely to be felt by the more vulnerable sections of the society. Elderly persons are clearly at an elevated risk for the consequences of poverty, especially in a country where no social security or disability pension is available to the vast majority of the citizens. Our findings thus underscore the serious impact of mass poverty on the growing population of elderly persons in the country.

The relationships of health factors to QoL that we found are in consonance with what previous studies suggest(Bowling et al., 2003; Bowling et al., 2007). In particular, the centrality of functional disability and self perception of one own’s health to the well-being of elderly persons is re-emphasized. The loss of independence that functional disability connotes for elderly people is a common cause of life dissatisfaction for them. We found cognitive impairment to be least likely to affect QoL in this environment. In an earlier report(Gureje et al., 2006a), we have suggested that this observation may relate to the relatively undemanding physical environment in which our respondents lived making the impact of cognitive decline on perceived wellbeing to be relatively mild for a long period of time.

Factors that connote isolation, including participation in family and community activities as well as contact with family members and with friends, are the most germane social factors for the QoL of elderly persons. These factors reflect the need of the elderly for social network, support and engagement(Bowling, 1994). It is likely that such factors are taking on increasingly more significant meaning for the elderly as social changes affect the structure of the traditional extended family and economic pressures lead to family members leaving for the cities. It is instructive that, among demographic factors, place of residence was an important determinant of QoL. We believe that the overall profile of our results suggest that urbanization and changes to the structure of the family may be leading to social isolation of the elderly in our setting. Our results suggest that the effect of such isolation may be broad, spanning not just the social domain of QoL, but also physical, psychological, and environmental domains. Cumulatively, these social factors may be affecting the wellbeing of elderly persons even more so than health-related factors.

In conclusion, the QoL of elderly persons is affected by several factors relating to demography, health, and social network and support (Everard et al., 2000; Newsom and Schulz, 1996). In a developing country undergoing rapid social changes and where elderly persons may have modest expectations of their health, social factors reflecting engagement may be more important to the wellbeing of elderly persons. In view of the importance of perceived wellbeing to the overall health status of elderly persons, any policy aimed at improving the health of elderly persons must include the promotion of and opportunity for their social engagement.

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Table 1

Demographic, health and social correlates of the physical domain of WHOQoL-Bref

Demographics				Health				Social factors			
Variable	**β**	**s.e**	**p-value**	**Variable**	**β**	**s.e**	**p-value**	**Variable**	**β**	**s.e**	**p-value**
Age	−0.58	0.7	0.001	Chronic pain	−8.37	1.1	0.001	Contact with family	−12.70	4.7	0.009
Sex	0.49	1.5	0.751	Self reported chronic medical condition	−5.24	0.8	0.001	Contact with friends	−6.58	3.7	0.084
Marital status	0.37	1.9	0.850	Disability	−19.86	1.5	0.001	Instrumental support	1.48	1.2	0.232
Educational status	0.06	0.1	0.423	Dementia	−1.89	1.1	0.090	Emotional support	−2.48	1.8	0.179
Economic status	1.08	0.2	0.001	Self reported overall health	18.42	2.0	0.001	Participation in family activities	−3.30	2.0	0.105
Residence	0.25	1.2	0.830	Depression	−8.15	1.8	0.001	Participation in community activities	−17.48	2.2	0.001

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Table 2

Demographic, health and social correlates of the psychological domain of WHOQoL-Bref

Demographics				Health				Social factors			
Variable	**β**	**s.e**	**p-value**	**Variable**	**β**	**s.e**	**p-value**	**Variable**	**β**	**s.e**	**p-value**
Age	−0.18	0.01	0.005	Chronic pain	−3.98	1.2	0.002	Contact with family	−14.20	4.6	0.003
Sex	−0.98	1.5	0.511	Self reported chronic medical condition	−3.30	0.8	0.001	Contact with friends	−4.65	2.1	0.032
Marital status	−1.47	1.4	0.286	Disability	−9.69	1.3	0.001	Instrumental support	0.37	0.8	0.667
Educational status	−0.10	0.04	0.031	Dementia	−1.74	0.7	0.018	Emotional support	−3.27	1.3	0.018
Economic status	1.00	0.2	0.001	Self reported overall health	13.96	1.8	0.001	Participation in family activities	−4.95	1.7	0.006
Residence	−1.23	0.9	0.170	Depression	−8.25	1.8	0.001	Participation in community activities	−11.04	1.8	0.001

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Table 3

Demographic, health and social correlates of the social domain of WHOQoL-Bref

Demographics				Health				Social factors			
Variable	**β**	**s.e**	**p-value**	**Variable**	**β**	**s.e**	**p-value**	**Variable**	**β**	**s.e**	**p-value**
Age	−0.30	0.1	0.001	Chronic pain	−0.80	1.3	0.555	Contact with family	−2.98	5.8	0.612
Sex	3.33	2.0	0.111	Self reported chronic medical condition	−1.90	1.1	0.106	Contact with friends	−11.56	2.5	0.001
Marital status	−3.81	1.8	0.037	Disability	−9.28	2.4	0.001	Instrumental support	−1.41	1.0	0.187
Educational level	−0.08	0.1	0.443	Dementia	−1.39	1.6	0.401	Emotional support	−7.83	1.6	0.001
Economic status	1.08	0.2	0.001	Self reported overall health	7.98	2.1	0.001	Participation in family activities	−6.26	1.9	0.002
Residence	−2.63	0.8	0.002	Depression	−1.26	2.3	0.583	Participation in community activities	−9.28	1.7	0.001

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Table 4

Demographic, health and social correlates of the environmental domain of WHOQoL-Bref

Demographics				Health				Social factors			
Variable	**β**	**s.e**	**p-value**	**Variable**	**β**	**s.e**	**p-value**	**Variable**	**β**	**s.e**	**p-value**
Age	−0.08	0.1	0.172	Chronic pain	0.60	1.1	0.590	Contact with family	−15.52	3.6	0.001
Sex	−0.29	1.2	0.803	Self reported chronic medical condition	−1.27	0.8	0.099	Contact with friends	−1.28	1.7	0.459
Marital status	0.52	1.1	0.629	Disability	−7.07	1.4	0.001	Instrumental support	−0.77	0.9	0.412
Educational status	−0.23	0.05	0.001	Dementia	−2.83	1.2	0.019	Emotional support	−4.54	1.0	0.001
Economic status	1.68	0.2	0.001	Self reported overall health	7.89	1.3	0.001	Participation in family activities	−4.75	1.3	0.001
Residence	−1.55	0.6	0.020	Depression	−0.65	1.5	0.672	Participation in community activities	−7.74	1.5	0.001