

Factors influencing health-related quality of life among minority elders in Southwest China.

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Abstract:

This study described health-related quality of life and examined the relationship of factors influencing health-related quality of life among minority elders in southwest China. A descriptive correlational study was conducted with a convenience sample of 105 community-dwelling minority elders in Southwest China. The participants reported poor physical health-related quality of life. Depression, chronic diseases, and body mass index were predictors of health-related quality of life among the minority elders. Community health care providers need to assess chronic diseases, mental health and nutrition among minority elders, and consider interventions to assist minority elders to enhance their health-related quality of life.

Keywords: nursing | clinical nursing | China | Chinese elderly | quality of life | southwest China | community health care

Article:

Improvements in living standards, increased nutrition, and decreased deaths from communicable diseases have led to an increase in the elder population worldwide. Thus, many countries now are becoming aging societies (Department of Economic and Social Affairs [DESA], 2001). According to the National Bureau of Statistics of China (NBSC, 2008), at the end of 2007 there were 153.4 million people over 60 in China, accounting for 11.6% of the total population. The number of people over the age of 60 will increase to 248 million by the year 2020, representing about 17.17% of the population (China's National Committee of Ageing [CNCA], 2008). According to the World Health Organization (WHO), when the fraction of the aged population exceeds 8–10% of the total, the society is considered aged.

As nations age, disability, frailty, and chronic diseases increase dramatically (Clausen et al., 2005). Studies have shown that women; the old, sick, and disabled; those in long-stay care facilities; minorities; and the needy are the weakest of the elderly. Thus, quality of life studies have focused on these groups of elders (Arber & Ginn, 1994; Crimmins, Hayward, & Saito,

1996; Hayward, Crimmins, & Saito, 1998; Hybels, Blazer, & Pieper, 2001; Kane, Matthias, & Sampson, 1983; Kunkel & Applebaum, 1992; Manton & Land, 2000; Verbrugge, 1989).

Economic conditions of elders are worse in China than in developed countries (NBSC, 2008), and health is even worse (Li, Lai, & Chen, 2006). Elders with poor health have more need of health services, and their quality of life is lower than that of other elders (Wu & Tao, 2007). Minority in China refers to the non-Han Chinese population. China officially recognizes 55 ethnic minority groups within China in addition to the Han majority. In China, studies have found that minority elders tend to have a better health-related quality of life (HRQOL; G. Q. Liu, Li, Mao, & Chu, 2007). However, studies of HRQOL among elders in China have focused on elders in cities (Chen et al, 2008; W. Jiang, Ling, Li, & Liu, 2007; S. Liu & Liu, 2008; Mao, Ke, Zhen, & Ke, 2007).

Factors that may influence HRQOL include demographic characteristics including economic status, functional status, nutritional status, depressive symptoms, and social support. Nearly all elders suffer from at least one chronic disease (Clausen et al., 2005) and elders with more chronic diseases have worse HRQOL. (Covinsky et al, 2003).

In China, X. R. Liu et al. (2004) found that the most frequent chronic conditions were hypertension, coronary heart disease, osteoarthritis, chronic gastritis, cataracts, and diabetes. As a consequence of these chronic diseases, elders may alter their food intake (Zhao, Xi, & Zhang, 2005), and medications and hospitalizations may lead to nutritional deficiencies (Wang, Li, & Jiang, 2005). Finally, social-demographic characteristics of elders may put them at risk for malnutrition. Many studies have found that nutritional status is related to quality of life among elders in China (Feng & Chen, 2001; Guan & Guan, 2007; Meng & Xu, 2002).

As age increases, physical condition becomes worse, psychological diseases may be more likely, social and family conditions change, and, thus, the functional status of elders may change (Gong & Zhou, 2003). Gender, normal aging (Gong & Zhou, 2003), living arrangements, educational level (Kamiyama et al., 1999), participation in activities, and cognitive impairment all influence functional status.

Depression, disability, and chronic disease are closely associated in elders. Elders have many risk factors for depression, including loss of friends and spouse, loss of physical health, financial problems, and significant role adjustments (Moore et al., 1999). As many as half of elders diagnosed with cardiac disease, stroke, chronic pain, Parkinson's disease, rheumatoid arthritis, congestive heart failure, and renal disease suffer from depression (Jorge, Robinson, & Starkstein, 2003). Finally, social support has been associated with quality of life according to studies of Chinese elders (Du, Jiang, Quan, & Wang, 2008; Wang & Shi, 2008).

However, few studies have focused on HRQOL among minority elders in China. Therefore, this study examined HRQOL among minority elders in China, and the relationships among demographic characteristics, nutritional status, affective status, instrumental activities of daily

living (IADL), social support and HRQOL, and identified predictors of HRQOL among these minority elders.

METHODS

Design and Sample

This study used a cross-sectional descriptive and correlational design. A convenience sample was recruited from the minority elderly population in three provinces in southwest China, where most minorities in China reside. The convenience sample consisted of 105 minority elders (a) aged 60 or over; (b) self-identified as a minority; and (c) oriented to date, time, and place (no cognitive impairment). The study was approved by the Wuhan University School of Nursing. Participants were informed that their involvement was completely voluntary and they could withdraw from the study at any point. Once informed consent was obtained, data were collected through face-to-face interviews. Health-related medical history and information were checked by reviewing the health records of participants.

Measures

A demographic questionnaire was constructed to gain data on age, gender, income, living place, and self-reported chronic disease conditions.

The Lawton IADL Scale was used to assess independent living skills (Lawton & Brody, 1969). This instrument is useful for identifying how a person is functioning at the present time. Eight domains of function are measured: ability to use a telephone, shopping, food preparation, housekeeping, laundry, mode of transportation, responsibility for own medications, and ability to handle finances. Total scores range from 0 (low functioning dependent) to 8 (high functioning independent), with higher scores indicating more independent function. Interrater reliability was established as 0.85 (Lawton & Brody, 1969). Internal consistency (Cronbach's alpha) of the IADL for minority elders was .83.

The IADL scale, which was originally written in English, was translated into Chinese by one of the authors, who is a native Chinese speaker and also fluent in English. Then the Chinese-translated version of the instrument was back translated into English by a second person, also a native Chinese speaker and fluent in English. Finally, the back-translated English version of the instrument was checked against the original English version by an author who is a native English speaker. Comparisons continued until no differences in meaning were observed between the back-translated version of the instrument and the original English version.

The Geriatric Depression Scale Short Form (Sheikh & Yesavage, 1986) assesses depressive symptoms in older adults. It consists of 15 items; 10 indicate the presence of depression when answered positively; the other five indicate the presence of depression when answered negatively. Scores of 0–4 are considered normal, depending on age, education and complaints;

scores of 5–8 indicate mild depression; 9–11 indicate moderate depression; and 12–15 indicate severe depression.

The Geriatric Depression Scale Short Form (GDS) was found to have 92% sensitivity and 89% specificity when evaluated against diagnostic criteria. The validity and reliability of the tool have been supported by clinical practice and research. In a study comparing the long and short forms of the GDS for self-rating of symptoms of depression, both were successful in differentiating depressed from nondepressed adults, with a high correlation ($r = 0.84$, $p < 0.001$; Sheikh & Yesavage, 1986). In this study, Cronbach's alpha for the GDS was .73 with minority elders.

Social support was measured by the Multidimensional Scale of Perceived Social Support (MSPSS), which stresses the individual's self-understanding and self-perception of social support (Blumenthal et al, 1987). The MSPSS gives the respondent's assessment of a hypothetical situation in which support might be needed. The scale is composed of 12 items that assess perceived availability of social support from family (e.g., “My family really tries to help me”), from a significant other (e.g., “There is a special person who is around when I am in need”), and from friends (e.g., “I can talk about my problems with my friends”). Ratings are on a 7-point scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). The sum of all the item scores comprises the total score, and higher scores indicate more perceived social support. The scale is reliable and well validated (Zimet, Dahlem, Zimet, & Farley, 1988), and the Chinese version of the MSPSS named Perceived Social Support Scale (PSSS), which was developed by Q. J. Jiang (2000), has also proven valid and reliable. Cronbach's alpha in this study was .78, which is satisfactory.

HRQOL was measured by the Medical Outcome Studies SF-36, a generic short-form health survey with 36 questions with eight subscales, a profile of functional health and well-being as well as psychometrically based physical and mental health summary measures and a preference-based health utility index. The SF-36 has proven useful comparing the relative burden of disease, and in differentiating the health benefits produced by a wide range of different treatments (Tsai, Bayliss, & Ware, 1997).

Reliability of the eight scales has been established, with rare exceptions, and published reliability statistics have exceeded the minimum standard of 0.70 recommended for measures used in group comparisons (Tsai et al, 1997); most have exceeded 0.80 (McHorney, Ware, Lu, & Sherbourne, 1994). Reliability estimates for physical and mental summary scores usually exceed 0.90 (Ware & Gandek, 1994). A review of the first 15 published studies revealed that the median reliability coefficients for each of the 8 scales was equal or greater than 0.80 except for social functioning, which had a median reliability across studies of 0.76 (Ware et al., 1993). In our study with minority elders, the reliability of SF-36 was satisfactory. Cronbach's alpha of the physical component summary (PCS) was .91 and for the mental component summary (MCS) was .94. For the eight subscales, the Cronbach's alphas were greater than .79 except for SF (Cronbach's $\alpha = .75$), which is consistent with Ware's statement.

Height and weight measurements were taken by one of the authors to minimize variations. Weight was measured with a floor standardized scale to the nearest 0.1 kg, with the older adults wearing light clothes and no shoes. Height was measured using a steel tape against a wall and a flat headboard at a right angle to the wall to ensure a correct reading. Then body mass index (BMI) was calculated as weight (kilograms)/height (meters) squared. The international classifications of adult underweight (BMI < 18.5), overweight (BMI > 25) and obesity (BMI > 30; WHO, 2008) were used.

Because of the potential for illiteracy, and lack of understanding among the minority elders, the study instruments were orally administered by one author and the questionnaires were filled out according to the answers given by the elders. Data were collected from July to August, 2008, and it took approximately 25–30 min for data collection for each participant.

Data Analysis

Descriptive statistics were used to characterize the sample based on nationalities, age, gender, self-reported chronic diseases, living place, marriage, educational level, income, BMI, perceived social support, IADL, depressive symptoms, and HRQOL. To analyze the relationships among nationalities, age, gender, self-reported chronic diseases, living place, marriage, educational level, income, BMI, perceived social support, IADL, depressive symptoms, and HRQOL, Spearman correlation was used because some variables were nominal. Hierarchical multiple linear regression was conducted to examine for factors predicting HRQOL. The assumptions for each of the statistical measures were assessed and an alpha level of significance was set at 0.05. SPSS 15.0 was used for the analyses.

RESULTS

Characteristics of Participants

A total of 105 community-dwelling minority elders living in three provinces in southwest China participated in the study. Nationalities included Tujia (44.8%), Li (21.9%), Hui (13.3%), Zang (6.7%), Miao (3.8%), Dai (3.8%), Qiang (1.9%), Hani (1.9%), Bulang (1%), and Lagu (1%). The average age of participants was 69 years with a range of 60 to 92 years; 47.6% were women. A total of 16.2% reported more than one type of chronic disease, and 36.2% had one chronic disease. Most (62.9%) lived in suburban areas, although 34.3% lived in the rural areas and 2.9% lived in urban areas. Most of the participants were married and lived with their spouse (72%). The majority (74.3%) had less than 12 years of education, and almost half (41.9%) were illiterate. Forty percent had incomes less than 108 Yuan (16\$) per month, which is below the poverty level in China.

More than half (59.5%) of the participants had a BMI in the normal range with a mean of 21.92 (SD = 3.28); 12.4% were underweight, 16.2% were overweight and only 1.9% were obese. Participants reported high perceived social support (M = 60.12, SD = 13.46), as measured by the

PSSS. They also reported few depressive symptoms, as measured by the GDS ($M = 4.82$, $SD = 3.64$). Most participants were functioning independently, with a mean score of 7.16 on the IADL; 88.6% had high (> 6) scores on the IADL.

The mean score on the PCS of the SF-36 was 62.53 ($SD = 18.18$), which was lower than the mean score on the MCS ($M = 68.26$, $SD = 20.57$). The subscale of body pain had the lowest mean score ($M = 46.67$), followed by general health ($M = 50.94$), vitality ($M = 60.67$), mental health ($M = 66.02$), role-physical ($M = 72.50$), social functioning ($M = 72.62$), and role emotion ($M = 73.73$); physical function had the highest mean score ($M = 80.00$).

Relationships Among Factors and HRQOL

Bivariate correlation matrix (Table 1) of the SF-36 PCS and MCS were examined to age, gender, marriage, education level, income, place of living, chronic diseases, IADLs, perceived social support, depressive symptom, and BMI. Age ($r = -.204$) and living in an urban area ($r = -.252$) were associated with lower scores on the mental component of the SF-36, although depression ($r = -.628$, $r = -.700$) and number of chronic diseases ($r = -.457$, $r = -.405$) were negatively associated with both the physical and mental components of the SF-36. Income ($r = .398$, $r = .404$), IADLs ($r = .302$, $r = .264$), perceived social support ($r = .388$, $r = .446$) and BMI ($r = .213$, $r = .247$) were positively associated with both the PCS and the MCS of the SF-36 respectively.

TABLE 1 Correlation Matrix Among Study Variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--------------------|---------|---------|---------|---------|---------|--------|-------|------|------|-----|----|----|----|
| 1. Age | 1.0 | | | | | | | | | | | | |
| 2. Income | -.201* | 1.0 | | | | | | | | | | | |
| 3. Place of living | -.150 | -.249* | 1.0 | | | | | | | | | | |
| 4. IADL | -.213* | .214* | -.257** | 1.0 | | | | | | | | | |
| 5. PSS | -.178 | .421** | -.023 | .180 | 1.0 | | | | | | | | |
| 6. Depression | .255** | -.395** | .144 | -.277** | -.493** | 1.0 | | | | | | | |
| 7. BMI | -.325** | .252** | -.213* | .219* | -.017 | -.191 | 1.0 | | | | | | |
| 8. Chronic disease | -.040 | -.065 | .018 | -.063 | -.206* | .275** | .180 | 1.0 | | | | | |
| 9. Gender | .094 | -.156 | -.018 | -.318** | -.054 | .058 | -.031 | .064 | 1.0 | | | | |
| 10. Marriage | .217* | -.087 | -.150 | -.028 | -.146 | .124 | .082 | .072 | .121 | 1.0 | | | |

TABLE 1 Correlation Matrix Among Study Variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------|--------|--------|---------|--------|--------|---------|-------|---------|---------|-------|------|--------|-----|
| 11. Education | -.012 | .340** | -.194* | .383** | .264** | -.305** | -.068 | -.150 | -.379** | -.059 | 1.0 | | |
| 12. HRQOL-PCS | -.186 | .398** | -.197* | .302** | .388** | -.628** | .213* | -.457** | -.164 | -.078 | .179 | 1.0 | |
| 13. HRQOL-MCS | -.204* | .404** | -.252** | .264** | .446** | -.700** | .247* | -.405** | -.140 | -.026 | .133 | .791** | 1.0 |

Note. N = 105. IADL = instrumental activities of daily living, PSS = perceived social support, BMI = body-mass index, HRQOL = health-related quality of life, PCS = physical component summary, MCS = mental component summary.

* $p < .05$. ** $p < .001$.

Hierarchical multiple linear regression analyses were conducted to determine the ability of demographic characteristics (age, income, living place, diseases), IADLs, the perceived social support (PSS), depressive symptom, chronic diseases and BMI to predict scores on the PCS and MCS. The variables were entered into two separate regression analyses. The first analysis was performed to determine the ability of demographic characteristics, IADLs, the PSS, depressive symptom, and BMI to predict the PCS of the SF-36 (Table 2). Income ($\beta = .324$, $p < .001$) and diseases ($\beta = -.459$, $p < .001$) were significant correlates and explained 38.3% of the variance in the PCS in the first step. Chronic diseases continued to be significant correlates of PCS, but the standardized coefficient decreased slightly when IADLs, PSS, BMI, and depressive symptom were entered into the step 2 analysis, and income was no longer significant. Depressive symptom ($\beta = -.439$, $p < .001$) was a significant correlate and increased explanatory power by 18.9% ($p < .001$). The variables IADL, PSS, and BMI, which were significant correlates of the PCS in the bivariate analysis, were no longer significant when other variables were entered into the regression. The model explained 57.2% of the variance in the PCS.

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The second regression analysis was performed to determine the ability of demographic characteristics (age, income, living place, and diseases), IADLs, the PSS, depressive symptom, and BMI to predict the MCS of the SF-36 (Table 3). Age ($\beta = -.179, p < .05$), income ($\beta = .300, p < .001$) diseases ($\beta = -.395, p < .001$), and living place ($\beta = -.204, p < .05$) were significant correlates and explained 38.2% of the variance in the MCS. Chronic disease continued to be a significant correlate of the MCS, but its standardized coefficient decreased slightly when IADLs, PSS, BMI, and depressive symptom were entered into the analysis, income, living place, and age were no longer significant. Depressive symptom ($\beta = -.562, p < .001$) and BMI ($\beta = -.147, p < .05$) were significant correlates and increased the explanatory power by 27.4 % ($p < .001$), with an overall 65.6% of explained variance in the MCS.

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DISCUSSION

This study examined the relationships among demographic characteristics, IADLs, perceived social support, depressive symptom, BMI, and HRQOL among minority elders in southwest China. The participants had poorer scores on the physical component of HRQOL than the mental component. The fact that most participants (72%) were married and living with their spouse, may have contributed to their higher scores on mental health. Age was negatively related to the mental component of the SF-36. The fact that the average age of participants was 68.99 also may have contributed to the higher scores on the mental component of the SF-36. Age was a predictor of MCS in the first step of the regression analysis, but after depressive symptom, IADL, PSS, and BMI were entered, it no longer predicted MCS. As age increases, elders may be prone to suffering from chronic diseases (Clausen et al., 2005) and depression (Moore et al., 1999), which may be the reason why a negative relationship was observed. Living in the countryside had a positive influence on the mental component of HRQOL, though it had little impact on physical health. Another study (Weeks et al., 2004) also found that the environment was associated with HRQOL. Weeks et al. (2004) found that HRQOL scores were significantly lower for military veterans who lived in rural settings than for those who lived in suburban or urban settings. Rural veterans had significantly more physical comorbidity, but less mental comorbidity than their suburban and urban counterparts.

Findings of our study indicate that participants in our study perceived higher physical functioning and lower bodily pain than elders residing in Shanghai (S. Liu & Liu, 2008). Deng, Song, and Huang (2006) noted that chronic diseases and farming were positively related to bodily pain. More than half of these participants suffered chronic diseases and most were farmers, which may explain why they had lower scores on bodily pain.

The sample's high perceptions of physical function reflect the fact that the majority had high levels of IADLs. Many studies have shown that IADLs contribute to the score on the physical

function aspect of HRQOL (Gong & Zhou, 2003; Sager & Rudberg, 1998). Most of the participants functioned independently in their daily life and worked on farms, which may have improved their physical function.

Income did not significantly predict HRQOL, although it had a positive relationship with both the physical and mental aspect of HRQOL. Frank et al. (2005) found that low-income African American young women had poorer quality of life than normative values for well adults and for depressed adults. In our study, 40% of participants had an income lower than the poverty level of China. But in the countryside, most elders can support themselves. They do some farming and feed fowl, which cannot earn much money but can make ends meet with daily life. This may be the reason why income contributed less than other variables to HRQOL among the minority elders in this study.

PSS was positively related to both the physical and mental components of HRQOL in this study. A previous study (Seeman, 2000) suggested that social support can promote health by providing persons with positive experiences and socially rewarding roles. In this study, participants' high score on PSS ($M = 60.12$) may reflect a higher level of HRQOL. But there was a study (Zhang, Geng, Zheng, & Wang, 2008) of minorities in China indicating that different cultural backgrounds might bring bias to a study. That is minority elders may misunderstand the meaning of the scale or give false answers to questions because they do not want to disclose information to others. For this reason, further study on the relationship between PSS and HRQOL is needed.

Depressive symptoms were the most significant predictors of HRQOL in this study. Other studies have also found that depression scores were associated with quality of life (Gaynes, Burns, Tweed, & Erickson, 2002). In this study, participants generally reported a low level of depressive symptom. However, most of the participants had low educational levels; and their values of life followed those of the traditional culture around them. They faced aging and death positively. In addition, most of them lived in the countryside, with frequent communications with neighbors. Elders seldom feel lonely, which might explain why they had a low level of depressive symptoms. Chronic diseases were the other significant predictor of HRQOL among the participants. Almost half of the participants reported that they were not suffering from any chronic diseases, which was reflected as the high level of physical function.

BMI was a third predictor of HRQOL among these minority elders. Yan and colleagues (2004) found that both underweight and obese older adults reported worse quality of life than older adults with normal weight, and particularly worse physical functioning and physical well-being. These finding reinforce the importance of normal body weight in older age.

CONCLUSION

In China, studies have examined HRQOL among minority populations (G. Q. Liu et al., 2007) and elders' HRQOL (S. Liu & Liu, 2008), few studies have examined health-related quality of

life among minority elders using the SF-36. This study suggests that depressive symptom, chronic diseases, and BMI predict the HRQOL of minority elders.

These findings must be interpreted with caution; however, the convenience sample included only elders who exercised outside, and most had high IADL scores. Their physical status might have affected their HRQOL. Participants also reported high perceived social support, but this result may have been influenced by traditional Chinese culture in which individuals will less likely admit to relationship problems (Parker, Gladstone, & Chee, 2001). This leads people to always report high social support. Thus, the relationships of perceived social support and IADLs to HRQOL could not be established.

IMPLICATIONS FOR NURSING PRACTICE

This study suggests that community health nurses who work with minority elders in China should consider depressive symptoms, chronic diseases, and BMI in clinical assessments and recognize the impact of these factors on HRQOL. Nurses should also consider the affects of place and income among minority elders. Interventions for minority elders should emphasize ways to help elders gain psychological support and manage chronic diseases. The nursing interventions such as counseling and health education on both self-management and family care for patients with chronic diseases are recommended.

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