

# Self-reported health: A study of older adults from a developing country - Nepal

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## SUMMARY

Self-reported health is an easy measure of overall health and is useful in identifying persons at risk of a decline in health and the risk of disability in older adults. The purpose of this paper is to identify the correlates of self-reported health for older adults in Nepal. The subjects ( $N = 137$ ) were members of the Chhetri caste who were 60 years or older (mean age  $69.1 \pm 7.2$  years; 54% women) and living in Katmandu City. Data were collected by face-to-face interviews using three self-reported health questions. A single scale was developed from the three self-reported questions. Bivariate analysis and multiple regression analysis were used to analyze the results. The findings show a correlation between self-reported health and sex, household status, living arrangements, social participation, chronic health problems, functional disability in activities of daily living (ADL), employment status, and economic satisfaction. Results of multiple regression analysis indicate that factors for self-reported health among older adults are chronic health problems, economic satisfaction, functional disability in ADLs, and social participation.

**Key Words:** Self-reported health, functional disability, elderly, developing country, Nepal

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## 1. Introduction

Populations in developing countries will be aging rapidly in the coming decades: The number of older persons (those aged 65 or older) in less developed countries is expected to increase from 249 million to 690 million between 2000 and 2030 (1). This aging population represents a public health success story, but it simultaneously creates new economic and social challenges (2). The elderly are at high risk for disease and disability, and an aging population will place urgent demands on a developing country's health care system that is ill-prepared to handle them (3).

The health status of the elderly population in poor countries is not well-known due to a lack of health status indicators. In such situations, self-reported health (SRH) may be an alternative research method to assess the health of the elderly because it is simple, short, and global. Since the 1950s, SRH has been one of the most

frequently used variables in gerontological and health research (4) in Western and other developed countries. The measurement of SRH is generally ascertained by a single question "In general, would you say your health is ...?" that is rated on a five-point Likert scale from excellent to poor.

Past research has shown that self-rated health is a useful proxy for morbidity and mortality patterns in epidemiological studies (5-7). Researchers have reported that SRH has independent effects on mortality (7,8), new morbidity (9), functional ability (10), health care utilization and hospitalization (11), and recovery from illness (12). Highly salient experiential factors--such as physical symptoms, energy level, and limitations in functioning--have had the greatest impact on self-assessment of health (13,14). Self-rating has also been shown to be a better estimate of the health status of the elderly than professional ratings carried out by nurses (15). Self-rating among older adults has been found to be generally more favorable than physicians' ratings (16,17).

Detailed examination of SRH has been largely limited to the developed world. Very few analyses have been published using data from developing countries (18-20), largely because of the absence of information

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on potentially key determinants of SRH such as acute and chronic morbidity, limitations in activities of daily living (ADLs), and, most importantly, measured physical performance (21). International examinations of SRH are particularly valuable because there may be important differences in the association of SRH with other health indicators (4,18,19).

Nepal is one of the poorest countries in the world, with more than 40% of its people living below the poverty line, low levels of education (particularly for the elderly), and poor health infrastructure. The overwhelming majority of older individuals live with their children, and mostly their sons (22). Alternative sources of financial support outside the family are scarce. In Nepal, research on issues facing older adults using primary data is scarce.

This study thus investigates the factors of SRH in the context of a developing country, Nepal.

## 2. Methods and Measures

### 2.1 Methods

A face-to-face interview using a structured questionnaire was adopted for the study.

**2.1.1 Study site and study population** Data for this study were taken from a cross-sectional survey of Nepalese elderly in July-August 2005. The study site was Katmandu Metropolitan City, the capital and largest city in Nepal with a population of 671,846 (23). For the purpose of this study, an administratively and geographically well-defined ward was selected. The ward was chosen for convenience in terms of accessibility and cooperation. This ward has a total population of 34,488 with 7,848 households (23). According to an unpublished source from the Central Bureau of Statistics, there were 1,287 households with at least one older adult of 60 years or older. The sample of this study was derived from a larger study. The sampling process has been reported elsewhere (24). A convenient sample of 137 older adults from 1,287 households was chosen based on the following criteria: 1) a responsive older adult from each household 2) who belongs to the Chhetri caste/ethnicity, 3) consents to participation in the study, 4) is able to communicate in the Nepali language, and 5) who lacks apparent cognitive impairment as determined by other family members. Due to their considerable differences, other castes/ethnicities were not included in this study.

The Chhetris are members of the second highest of the four castes ingrained in Nepali society and are traditionally said to be responsible for upholding justice and social harmony. The Chhetris include people in government and military positions. They are predominantly Hindus and are of eastern Indo-Aryan stock. The Chhetris account for the highest proportion

(16%) of Nepal's population.

**2.1.2 Data collection** The interviewers consisted of 10 university students (5 males and 5 females) with training or previous experience working in community health from Tribhuvan University. All interviewers participated in a two-day training session that covered informed consent, ethical issues, and a review of the questionnaire.

**2.1.3 Ethical considerations** The study protocol was approved by the Institutional Review Board of the Graduate School of Medicine of the University of Tokyo in June 2005. The purpose of the study was explained and verbal informed consent was obtained from all participants before interviews. The interviews were conducted in the respondents' homes and averaged an hour. No other family members were present at the time of the interview.

### 2.2 Measurements

**2.2.1 Dependent variable** Like in the previous study by Liang *et al.* (25), the dependent variable SRH was assessed in this study via three indicators: (a) a rating of physical health [coded 'very bad' (1) to 'very good' (5)], (b) health in comparison to others one's age [coded 'much worse' (1) to 'much better' (5)], and health compared to last year [coded 'much worse' (1) to 'much better' (5)]. Then the three items were added to form a composite of perceived health. In the present study, internal consistency was maintained with a Cronbach's alpha of 0.76. Results of principal component analysis (see appendices 1 and 2) showed that only one factor with loading greater than 0.7 for all of the variables explained more than 68% of the total variance.

**2.2.2 Independent variables** Functional disability was measured using a scale of 5 activities of daily living (bathing, dressing, using the toilet, transferring from bed-to-chair, and eating) developed from the 6-item ADL scale (26). One item, "Using the Telephone," was not included in this scale as it was not practical for the majority of the subjects in this sample. The present study defined ADL disability as a 'needing some assistance'/'inability to do the activity at all' with regard to one or more of the activities listed in the respective scale.

Age was measured as a continuous variable. Marital status was classified as 'married' or 'widow/widower'. Widow/widower included individuals who were unmarried, divorced, or separated. Household status was classified as 'family member' or 'head of household'. A head of household was defined as an individual who makes major decisions with regard to household activities. Education was classified as 'illiterate' or 'literate'. Total family size was measured

as a continuous variable. Living arrangements in this study were classified as 'living with children' or 'other.' Social participation was measured with the question "Do you participate in social activities (such as political gatherings, local development meetings, or religious work)?" and was answered with 'yes' or 'no.' The existence of chronic health problems also required a 'yes' or 'no.' Currently working for cash or in kind was reported simply as 'yes' or 'no.' Previous occupations were divided into 'agricultural' and 'non-agricultural' employment. Financial satisfaction, a widely used measure of self-perceived financial condition, was assessed by the respondent's estimate of his or her present financial condition on a 5-point Likert scale of 'not satisfied,' 'not that satisfied,' 'fair,' 'satisfied' and 'very satisfied.' Since the distribution at the extremes was small, the present study grouped answers on a 3-point scale with 'not satisfied' and 'not that satisfied' coded as 1, 'fair' coded as 2, and 'satisfied' and 'very satisfied' coded as 3.

### 3. Analysis

Selected background variables such as age, sex, marital status, household status and education, social participation, chronic health problems, as well as currently working for cash or in kind, previous occupation, functional disability, living arrangements, and self-perception of economic satisfaction and their correlation with the SRH scale were all examined using Spearman's correlation. The variables that significantly correlated ( $p < 0.05$ ) with SRH were then used in multiple regression analysis as potential predictors of SRH. Analysis was conducted using SPSS 14.0 for Windows.

### 4. Results

The distribution of social, demographic and health-related characteristics of the 137 Chhetri elderly is shown in Table 1. Subjects ranged in age from 60 to 93 years of age with a mean age of  $69.1 \pm 7.2$  years. Seventy-four (54.0%) were women, and seventy (51.1%) were married. Seventy-four (54.0%) were illiterate (meaning they could not read or write). About 66% of the elderly participated in social activities. Only thirty-six (26.3%) were currently working for cash or in kind. Regarding self-reported economic satisfaction, 50% of the elderly reported their situation to be fair. The majority of older adults were living with their children. Eighty-two (59.9%) older adults reported suffering from chronic diseases. The average household size of older adults was  $6.0 \pm 2.9$  members. Eight-point eight percent of the older adults reported having problems with at least one of the ADL items.

Table 2 shows the simple correlation of SRH with selected background variables. Results indicated that being male ( $p = 0.035$ ), head of household ( $p = 0.002$ ), economically satisfied in comparison to one's neighbors ( $p = 0.001$ ), participating in social activities ( $p = 0.000$ ) and being employed ( $p = 0.010$ ) were positively related to SRH. Furthermore, having a self-reported chronic disease ( $p = 0.000$ ), functional disability in ADL ( $p = 0.000$ ), and living with one's children ( $p = 0.012$ ) were negatively correlated with SRH.

The above variables significantly correlating with SRH ( $p < 0.050$ ) were then used in multiple regression analysis. Non-significant variables were then removed from the model.

Results of multiple regression of self-reported health are shown in Table 3. The model summary shows that more than 50% ( $R^2 = 0.541$  and adjusted  $R^2 = 0.513$ ) of the variance was explained by 8 variables included in the model: sex, household status, participation in social activities, self-reported chronic health problems, currently working for cash or in kind, economic

**Table 1.** Selected background characteristics of Chhetri elderly ( $N = 137$ )

Characteristics	N	%	Mean	SD	Range
Age			69.1	7.2	60-93
Sex (men)	63	46.0			
Marital Status (married)	70	51.1			
Household Status (Head)	82	59.9			
Education (illiterate)	74	54.0			
Total family size			6.0	2.9	1-19
Living arrangement					
With children	118	86.1			
Social participation (yes)	90	65.7			
Chronic health problem (yes)	82	59.9			
Functional disability in ADL* (yes)	12	8.8			
Past occupation					
Non-agriculture	46	33.6			
Working status (Working)	36	26.3			
Economic satisfaction					
Not satisfied	35	25.5			
Fair	69	50.4			
Satisfied	33	24.1			
Self-reported health			8.81	2.01	3-15
General physical health			2.81	0.91	1-5
Compared to other people			2.81	0.71	1-5
Compared to last year			3.21	0.81	1-5

SD = Standard deviation

\*Activities of daily living and includes 5 items: bathing, dressing, toileting, transfer, eating.

**Table 2.** Correlation of background variables with self-reported health

Variables	Spearman's correlation coefficients ( <i>r</i> )	<i>p</i> *
Age	0.059	0.496
Sex (men)	0.180	0.035
Marital Status (married)	0.149	0.083
Household Status (Head)	0.261	0.002
Education (illiterate)	0.097	0.401
Total family size	-0.102	0.237
Living arrangement	-0.213	0.012
Social participation (yes)	0.314	0.000
Chronic health problem (yes)	-0.569	0.000
Functional disability in ADL	-0.318	0.000
Past occupation (Non-agriculture)	0.019	0.378
Working status (Working)	0.220	0.010
Economic satisfaction	0.281	0.001

satisfaction, living arrangements, and functional disability in ADL. The model demonstrated the factors that were related to the self-reported health of the elderly included participation in social activities, self-reported chronic health problems, economic satisfaction compared to one's neighbors, functional disability in ADL and living arrangements. Having chronic health problems ( $B = -2.026$ ,  $\beta = -0.503$ ,  $t = -8.143$ ,  $p = 0.000$ ) and functional disability in ADL ( $B = -1.170$ ,  $\beta = -0.168$ ,  $t = -2.652$ ,  $p = 0.009$ ) were factors of SRH. On the other hand, social participation ( $B = 0.663$ ,  $\beta = 0.159$ ,  $t = 2.441$ ,  $p = 0.016$ ) and self-perceived economic satisfaction ( $B = 0.760$ ,  $\beta = 0.271$ ,  $t = 4.248$ ,  $p = 0.000$ ) were positively associated with a better SRH. Living with one's children ( $B = -0.862$ ,  $\beta = -0.157$ ,  $t = -2.583$ ,  $p = 0.011$ ) was found to be associated with a lower SRH in older adults.

## 5. Discussion

In light of increasing worldwide concern for issues affecting the elderly, self-reported health has been recognized as a valid indicator of health status and an important component of the quality of life among older adults. The basic purpose of the present study was to examine the factors of self-reported health among Nepalese (Chhetri) older adults.

The mean score of self-reported health in this study, which used a 3-item self-reported health scale (score ranging from 3-15 points), was  $8.77 \pm 1.98$ . This score cannot be compared to scores in other studies since 1-item self-reported health is generally used to study the self-reported health of the elderly. A study by Liang

*et al.* (25) also used a 3-item self-rated scale (two items were similar to items in this study while one differed), but that study did not include the score.

Findings from the current study reveal that self-reported chronic health problems were the most significant variables of self-reported health, mirroring the study by Liang *et al.* (25). Further, functional limitation in at least one of the activities of daily living was related to a lower SRH. These findings were also supported by findings from other countries (27-32).

Many studies have shown that participation in social activities is good for the mental health of the elderly (33,34). The current study also noted that participation in social activities was related to a better SRH. A study by Wu and Hart (35) showed that social involvement declines with mobility problems but increases with self-reported health status, whereas social contact also increases with cognitive function. Poor mental health reduces social contact and participation.

Some studies (36,37) have indicated that the subjective experience of financial strain is more closely related to health than is the actual level of income. This might be particularly true for older adults. A study from Hong Kong (38) found that those who rated their financial situation as insufficient experienced poorer health than those who rated their situation as sufficient. The current findings also demonstrated that self-reported economic satisfaction was related to a better SRH in Nepalese (Chhetri) older adults.

Based on these findings, functional limitations in ADL and having chronic health problems were closely related to a lower SRH; self-reported economic satisfaction and participation in social activities were related to a better SRH among Nepalese older adults. Age, employment status, education, household status, and sex had no effect on self-reported health in the present study. Research from developed and developing countries shows that more health problems are reported by women than men (18,39-41). At the bivariate level, men in the current study had a higher self-rated health, but it did not remain significant in the final model.

Interpretations of this study should be considered within the context of the study's strengths and limitations. First, the data were cross-sectional, so establishing the causality of correlations between dependent variables and independent variables would

**Table 3.** Multiple regression of self-reported health\*

Variables	Unstandardized coefficient ( <i>B</i> )	Standardized coefficient ( $\beta$ )	<i>t</i>	<i>p</i>
Social participation	0.663	0.159	2.441	0.016
Chronic health problem	-2.026	-0.503	-8.143	0.000
Economic satisfaction	0.760	0.271	4.248	0.000
Functional disability in ADL	-1.170	-0.168	-2.652	0.009
Living arrangement	-0.862	-0.157	-2.583	0.011
Model Summary				
$R^2$	0.541			
Adjusted $R^2$	0.513			

\*Only significant variables are shown from the variables entered: sex, household status, living arrangement, social participation, chronic health problem, activities of daily living, working status and self-perceived economic.

be difficult. Therefore, future research needs to test the causality between independent variables and SRH of the elderly using a longitudinal design. Second, the current results cannot be extrapolated to the distribution of self-rated health in other populations in Nepal in light of the convenient nature of the sample. Because the present study is a correlation study, however, results indicating correlations between variables may be valid in other populations. Further study is necessary to confirm the current findings in other settings.

Despite these limitations, this study should prove useful for examination of aging populations in developing countries and improvement of gerontological care and future health policy in Nepal since it is the first to analyze the significant variables of SRH among Nepalese elderly. A better understanding of the factors influencing self-reported health will help in the development of preventive interventions to maintain and improve the quality of life of older adults.

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### Appendix 1: Matrix

SRH	Component 1
1. General physical health	0.851
2. Compared to others one's age	0.873
3. Compared to last year	0.745

Extraction method: Principal component analysis

### Appendix 2: Total variance explained

Component	Initial eigenvalues		Extraction sums of squared loadings	
	Total	% of Variance	Total	% of Variance
1	2.041	68.048	2.041	68.048
2	0.614	20.47		
3	0.344	11.482		

Extraction method: Principal component analysis