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Self-reported Health of Aged Population in India

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Abstract

Lack of health status indicators that can be voluntarily collected for individuals with minimal expenditure of resources is a major limitation to assess the health of elderly population. This has sparked interest in self-reported measures of health status. The present paper extracted the data from SAGE (Study of Global Ageing and Adult Health) Wave-1 India. Data of 6560 individuals of 50 plus age group have been analyzed from Wave-1. Elderly health was assessed based on six domains of health activity. Health assessment by background characteristics shows older persons in higher age group had a higher percentage in reporting bad health and vice-versa, and females report bad health conditions more in comparison with males. Persons belonging to households in higher wealth quintile and having higher education were in good health condition. Multinomial logistic regression shows that with increasing education and income levels, the possibility of experiencing moderate and good health is found to increase considerably. The study concludes that the self-reported health of the elderly population is poor.

Key Words: *Self-reported health, elderly, India.*

I. Introduction

The process of population ageing is defined as ñthe decline in the proportion of the young population and the rise in older populationò and is primarily a function of demographic transition. All societies undergo a demographic transition from a condition of high fertility and high mortality to a state of low fertility and low mortality. Incessant improvement in life expectancy as a result of medical advancement has made societies reduce mortality rates and achieve low fertility that benefited younger age population and subsequently adds population in the older ages. Those surviving cohorts in the future increase the size of elderly (Coale, 1964).

Contemporary scholastic discourse and policymakers accentuate the elderly issues and the fact that the increase in the share of the elderly population is probably the most dramatic in contemporary population history as the rate of aging is ñwithout parallel in the history of humanityò (UN, 2001). United Nations Population Division projections suggest that globally the number of people aged 60 years and more will increase from 8 per cent in 2010 to 19 per cent by 2050, which in terms of numbers is 800 million to two billion by the year 2050 (UN, 2011; RGI, 2007).

India, with recent technological and medical advancement, will see a dramatic increase in old age population in the decades to come. Existing estimates predict that the proportion of elderly 50 and above will grow by 8 per cent in 2010 to 35 per cent by the year 2050 (Bloom et al., 2010; Gutman, 2011). Globally, an unprecedented growth rate of 5 per cent to 14 per cent in 60+ elderly population is predicted by the mid-century. India will have 60+ and older population close to 323 million people, a number greater than the total U.S. population in 2012. Also, the oldest of old age group (80 years and more) will triple from 1 per cent to 3 per cent. (Khan & Irat, 2016; Scommegna, 2012; UN, 2011).

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This profound shift in the share of elderly Indians will take place in the coming years with modern medical facilities reaching the interior places which shall see an increase in life years. Exploring health among elderly persons will provide baseline evidence to uphold public health promotion and preventive strategies against disease and the existing association onset for the coming years. To understand and evaluate issues related to the health of elderly, there are various paradigms. The school of thought which advocates ñself-rated healthò is widely accepted to understand the association between the health of elderly and socio-cultural background of individuals, and how individuals assess their health state resting in different socio-cultural counters (Feng et al., 2015; McMullen & Luborsky, 2006).

Individuals in later stages of life in both sexes experience financial, social and economic hardships. The health status of individuals is affected by these hardships as it increases when they grow older. (Kahn & Pearlin, 2006; Elderet et al., 2003). As the ageing population increases in any economy, the health of the elderly also becomes a growing concern. Health condition of the elderly individuals is to an extent determined by the conditions in which they are born, grown and lived. Empirical observations show that the social status of individuals in youthful age, and the profession they were will go a long way to achieving good health in the future (Cramm et al., 2015).

An individualôs ñself-reported healthò is a widely used measure to evaluate health status. In the contemporary academic investigations, there is an upsurge of research in morbidity and mortality risk of people through self-rated health. In these investigations, the individuals report their health as excellent, very good, good, fair or poor, which gives intriguingly relevant information about health status leading to expected life years. Many research scholars concurrently use self-reported health as a proxy for measuring the health status of elderly (Ichoku et al., 2011; Landrineet et al., 2016; Mora et al., 2008). Self-reported health encompasses the facets of health, social, mental and physical well-being, providing current health status and long-term health condition and also predicts mortality.

Existential studies pertaining to elderly health show a significant relationship between social, economic and demographic factors and individual responses in self-reported health. Previous studies have examined past life experiences of elderly persons together with individual characteristics when investigating differences in self-reported health. Results show an increase in reporting with an improvement in education and wealth status. The previous life experiences of elderly comprise of both community level and individual level factors. Individualôs exposure to socio-cultural practices, community and demographic factors are at the community level (Tomioka et al., 2016; French, 2012). Individual factors include educational attainment, profession, wealth status and housing condition.

Explanations to previous life experiences establish a relationship between individual cognition at elder ages and social support. A probable explanation could be through individual educational attainment and economic status. Likewise, socio-cultural factors may have an impact on self-reported health across elderly individuals (Jürges et al., 2008; Krokstad et al., 2002). Owing to the differences in perceptions related to health, evidence has shown that marital status has implications for elderly health. Being single or divorced increases the chance of reporting poor health (Bruce & Fries, 2003; Lindstrom, 2009). It is often allied with loneliness, emotional instability, as well as economic vulnerability. In the same way, low-income, poor lifestyle choices such as smoking, excessive drinking and lack of exercise are other risk factors associated with poor health (Krokstad, 2002; Theme et al., 2015; Mukamal, 2006). The rationale of this study is to assess the association of socio-demographic background characteristics of the elderly with their self-reported health in India. An attempt is made to investigate the gender differences and their association between self-reported health by marital status and place of residence of the elderly. Furthermore, the study addresses the question of whether there is any association between the accuracy of poor self-rated health and educational attainment among individuals.

II. Data Source & Methodology

The study of Global Ageing and Adult Health (SAGE) is a longitudinal health survey, supported by World Health Organization (WHO) conducted in six countries. The primary objective of SAGE was to obtain reliable, comprehensive and comparable data on levels of health across a range of critical domains for adult population. SAGE Wave-1 in India has been implemented in the states of Assam, Karnataka, Rajasthan, Uttar Pradesh, Maharashtra and West Bengal, the same states which had been covered in the World Health Survey (SAGE Wave-0), India 2003. The primary sampling units and the sample households covered in the WHS were the same baseline sample for the SAGE India wave-1 conducted in 2007.

A systematic, simple random sampling selection process was undertaken for World Health Survey that included all states in India. SAGE Wave-1 used almost the same sample of selected six states. Two Stage sampling method was used to collect the information for rural areas in the respective states, and three stage sampling method was adopted in urban areas to get the desired sample. The primary sampling units in rural areas were villages, while in urban areas the PSUs were city wards. From each city wards, two census enumeration blocks (CEB) were selected. A total of 10,600 households were covered and 9,626 household interviews were completed covering a population of 57,082. Information on individual health modules was collected from 11,230 individual respondents. Since the analysis is for the older population, we have selected 6,560 individuals aged 50 years and above.

SAGE India used household, individual and proxy questionnaires. The household interview schedule was administered to any household member aged 18-plus, which gathered information on the household roster, income, assets, health and non-health expenditures. The individual questionnaire was administered to all adult respondents aged 50-plus. This overall interview schedule covered health, risk factors, health behaviour, health care, quality of life, social connection and participation in the community.

Health status was assessed using self-reported questions from six domains. From the latter, twenty questions were selected to give a score to each on the basis of the options 1= no difficultyé 5=extreme difficulty in performing the daily activity. Worst health was given a score 0, and good health was given 100. The score was then divided into three mutually exclusive and exhaustive categories ï bad, moderate and good health.

Multinomial logistic regression was used to determine the factors associated with a self-reported health assessment. Multinomial logistic regression is an expansion of logistic regression in which we set up one equation for each logit relative to the reference outcome. Self-reported health assessment has three categories as bad health, moderate health and good health. For a dependent variable with three categories, this requires the calculation of two equations, one for each category relative to the reference category (bad health) to describe the relationship between the dependent and independent variables. The equation would be

$$\ln [\{P(Yi=2)|Xi\}/\{P(Yi=1)|Xi\}] = \check{U}_2 + \beta_1^2 X_{1é\ é\ .} \beta_k^2 X_{ik} é\ é\ é\ é\ é\ é\ ..(1)$$

$$\ln [\{P(Yi=3)|Xi\}/\{P(Yi=1)|Xi\}] = \check{U}_3 + \beta_1^3 X_{1é\ é\ .} \beta_k^3 X_{ik} é\ é\ é\ é\ é\ é\ ..(2)$$

Where, $\check{U}_2$ and $\check{U}_3$ are the intercepts for the category within a week and more than a week, and β_k^2 and β_k^3 are the slope coefficient of the X_i variables for respective category of the dependent variable.

III. Results

Percentage distribution of the elderly by self-reported health assessment of overall health according to some selected background characteristics is presented in Table 1. It is evident that health of the oldest old (70+) elderly is worse when compared with younger old (50-60). Findings depict

a robust negative association between health and age. As age increases, there is a sharp decrement in having good health among elderly. It is found that only 9 per cent of the oldest of old (80+) age group of respondents reported having good health whereas the percentage increases significantly higher to 39 per cent among young old (50-59) reported having good health. Concurrently, there is an increase in the proportion of older people having moderate health with age 50-59, 46 per cent to 70-79 years 52 per cent, and at the same time, there is a decrease in 80+ age group 36.4 per cent. The negative association can also be confirmed for elderly who reported being of ill health as an increase in life years from 15 per cent among the 50-59 age group of the elderly reported to live with bad health as compared with 54 per cent among 80+ age group.

Table-1: Percentage distribution of elderly by self-reported health assessment of overall health according to selected background characteristics (N=6,560)

Background characteristics	Self-reported health assessment		
	Bad health	Moderate health	Good health
Age			
50-59	14.6	46.0	39.4
60-69	27.0	44.7	28.3
70-79	31.9	51.5	16.6
80+	54.2	36.4	9.4
Gender			
Male	15.2	45.9	38.9
Female	31.0	46.3	22.7
Place of residence			
Rural	24.1	48.3	27.6
Urban	20.2	40.4	39.3
Education			
Uneducated	30.5	49.8	19.7
Primary	20.4	45.2	34.3
Secondary	11.0	42.2	46.9
College	3.8	27.4	68.8
Wealth quintile			
Poorer	33.4	48.3	18.3
Poor	24.6	50.5	25.0
Medium	24.7	44.6	30.7
Rich	18.8	48.0	33.2
Richer	15.6	40.4	44.0
Religion			
Hindu	22.7	46.0	31.4
Muslim	25.7	45.1	29.2
Other	20.5	29.2	27.7
Caste			
Schedule tribe	23.6	48.5	27.9
Schedule caste	25.2	50.6	24.2
Others	22.5	44.9	32.6
Marital status			
Never married	29.1	44.4	26.4
Married	18.2	46.9	34.9
Separated/divorced/widowed	39.0	43.4	17.6
Total	23.0	46.1	31.0

There exists a gender gap in health status among the elderly. Having scored better in all the three models, males have better health than females. Approximately, 39 per cent of the elderly males reported good health as compared with 23 per cent of the elderly females which indicates that there is a substantial gap in the prevalence of self-reported good health among male and female elderly

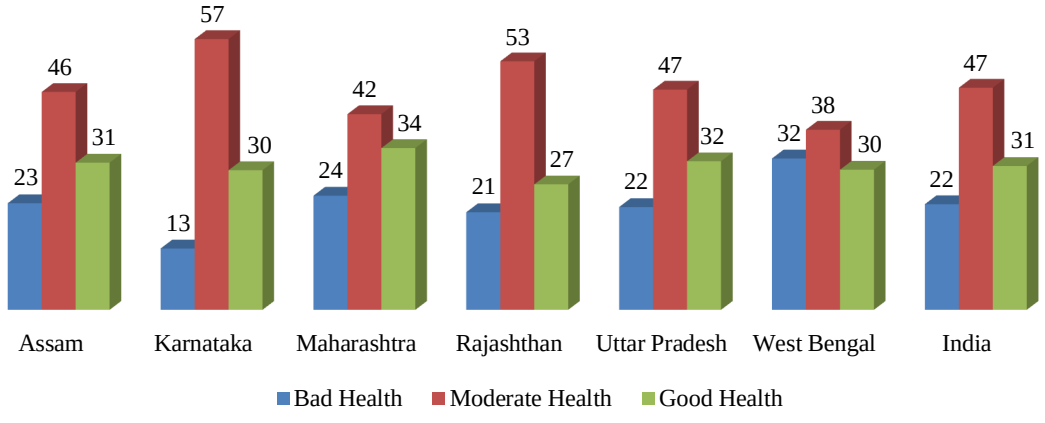
respondents. Further, it is also reported that females are observed to be of poor health than males as 31 per cent females reported to be of poor health whereas only 15 per cent elderly males experienced bad health. Place of residence emerges as a significant predictor for enjoying good health. Results reveal that a higher proportion of elderly respondents residing in urban areas (39 per cent) poses good health as compared with their counterparts in rural areas (28 per cent).

There is a significant positive association between health status and educational qualification of the elderly in a gender perspective. With increasing education, the percentage of good health is increasing among them and vice-versa the percentage of bad health is decreasing. Uneducated older adults reported the lowest rate of self-reported good health (20 per cent), and the highest percentage of good health (69 per cent) was reported among individuals having education up to the college level. There subsists a profound effect of wealth status on the health situation in any population group and more so on an elderly subset. A higher proportion of richer elderly reported to experience good health (44 per cent), and poorer people had the lowest percentage of living with good health (18 per cent). Older people had a low percentage of bad health among the richer (16 per cent) while the higher rate prevailed among the poorer (33 per cent).

Caste of the elderly has emerged as a principal predictor to live with good health and ill health. The elderly individual's samples from the Other Caste category (i.e., general caste) are more often experience good health (33 per cent), whereas the elderly in the SC & ST category reported a lower score of 28 per cent and 24 per cent respectively. A lower percentage of elderly in other caste groups was found in a bad health condition (23 per cent), and at the same time it was found high among the SCs (25 per cent).

Marital status of an individual has emerged as a paramount indicator significantly affecting the health of elderly at older ages. Widowed elderly is having the lowest prevalence of self-reported good health (18 per cent), followed by never married persons (26 per cent), whereas the elderly living as married is much better (35 per cent) than the separated, divorced, widowed and never married. Widowed/separated elderly reported a higher prevalence of bad health (39 per cent) and married persons a higher percentage among moderate health (47 per cent). There is a significant variation in self-reported health assessment across states. Those who reported good health ranged from 27 per cent to 34 per cent across six states. Those who reported bad health (32 per cent) were the highest in West Bengal, and lowest reporting were in Karnataka (13 per cent) (Figure 1).

Figure 1: Self-reported health status by States



Multinomial logistic regression is used to determine the factors associated with self-reported health assessment among the elderly population in Table 2 by taking ôbad healthô as a reference category. Results show that with increasing age, the relative risk of having moderate and good health decreases. Considering 50-59 age group as the reference category, the relative risk of having moderate health in 60-69 age group decreases by 44 per cent. At the same time, keeping age group

50-59 as the reference category, the relative risk of having moderate health significantly decreases by 45 per cent in the age group of 70-79 and for the oldest of the old age group it decreases by 76 per cent. Considering 50-59 age group as a reference category, the relative risk of having good health in 60-69 age group has decreased by 57 per cent. For the age group 70-79, relative risk to attain good health is reduced to 80 per cent, Relative risk to attain good health further decreased to 92 per cent for the oldest of old at 80+ years of age.

Table 2: Multinomial logistic regression of self-reported health assessment among the elderly according to selected background characteristics

Characteristics	Moderate health	Good health
Age		
50-59®		
60-69	0.56 (0.44-0.71)***	0.43 (0.33-0.56) ***
70-79	0.55 (0.40-0.75)***	0.20 (0.14-0.29)***
80+	0.24 (0.17-0.36)*	0.08 (0.05-0.14)***
Place of residence		
Urban®		
Rural	0.94 (0.68-1.29)	1.28 (0.91-1.80)
Gender		
Male®		
Female	0.57 (0.45-0.73)***	0.41 (0.31-0.54)***
Education		
Uneducated®		
Primary	1.01 (0.79-1.29)	1.58 (1.17-2.11)* **
Secondary	1.32 (0.87-2.00)	2.45 (1.6-3.76)***
College	2.32 (0.85- 6.30)**	8.16 (3.06-21.77)***
Wealth quintile		
Poorer®		
Poor	1.38 (1.01-1.86)***	1.68 (1.15-2.45)***
Medium	1.20 (0.88-1.65)	1.81 (1.24-2.63)***
Rich	1.64 (1.19-2.27)* **	2.21 (1.51-3.23)***
Richer	1.72 (1.19-2.48)* **	3.04 (2.00-4.60)***
Caste		
Scheduled tribe®		
Scheduled caste	1.05 (0.65-1.70)	0.84 (0.48-1.48)
Others	0.93 (0.59-1.45)	0.85 (0.5-1.44)
Marital status		
Never married®		
Married	1.71 (0.67-4.39)	2.06 (0.86-4.95)
Separated/ divorced/widowed	1.27 (0.49-3.34)	1.49 (0.60-3.70)

*® Reference; ***=p<0.01; **=p<0.05; *=p<0.10*

Females are 43 per cent relatively at less risk of having moderate health when considering males as reference category at 99 per cent level of significance. Considering uneducated older adults as the reference category, the relative risk of having moderate health is 2.32 times more likely among college-educated older adults at 95 per cent level of significance. With an increase in income level, the relative risk of having moderate health is also increasing. Considering poorer elderly individuals as reference category, the relative risk of having moderate health is 1.38 times more likely among poor people. Furthermore, it is 1.64 times more likely among rich individuals and 1.72 times more likely among richer people, all at 99 per cent level of significance. Taking scheduled tribes into reference category, it is found that the relative risk of having moderate health among schedule castes is 1.05 and among other castes 0.93. When never married is considered in reference category, the relative risk of having moderate health among married and widowed/separated is 1.71 & 1.27 respectively.

Further, with an increase in age, the relative risk of having good health decreases rapidly. Considering 50-59 age group as the reference category, the relative risk in the 60-69 age group is reduced by 57 per cent, whereas for the age group 70-79, it declined by 80 per cent, and 80-plus age group it further decreased by 94 per cent, all were found to be significant at 99 per cent level of significance. Considering males as the reference category, the relative risk of having good health is found to decrease by 59 per cent among females at 99 per cent level of significance.

As education and income increase, the relative risk of having good health increases, considering uneducated elder individuals as the reference category. The relative risk among educated individuals up to the primary level is found to be 1.58, secondary level 2.45 and college level 8.16, all at 99% level of significance. Taking poorer as the reference category, the relative risk among poor people is 1.68, medium 1.81, rich 2.21 and richer 3.04 and all is found to be significant at 99% level of significance. Among SCs and Others, relative risk decreased by 16 per cent and 15 per cent respectively by taking STs as the reference category. Similarly, married and widowed/separated have a relative risk of 2.06 and 1.49 respectively.

IV. Discussions

The study highlights the socio-economic factors associated with self-reported health status among the elderly population in India. It has been used as a response variable in the present study. Several studies have revealed that self-reported health among older population is a valid measure of the respondentôs objective health status, an important predictor of survival in old age and a strong predictor of healthy longevity (Singh et al., 2013; Ghosh & Hussain., 2010).

In the assessment of elderly health, an inverse association between age and experiencing good health can be anticipated, as with the increases in age, the odds of experiencing moderate and good health decreases notably from young old to oldest of old. Prusty et al. (2011) and RGI (2007) observed that as age increases, the reporting of poor health status increases which is higher among females than their male counterparts. The finding of the study is also consistent with the previous findings that health disadvantages among women could not be explained by the difference in demographic and socio-economic characteristics (Bora & Saikia, 2015).

The findings of the study confirm a positive association between health status and educational qualification. The study reveals that those elderly with less education are more likely to experience bad health. It was also found that at the same rank of age, the odds of experiencing bad health are significantly greater in low educated elderly women. Some other studies have also concluded that low education is associated with poorer self-rated health, greater difficulties in performing daily activities and poor quality of life (Tyagi & Paltasingh, 2017).

There also exists a positive association between the economic status of elderly and their health. As we move across wealth quintile from poorer wealth quintile to richer wealth quintile, we observe that the situation of health has increased twofold. Intimation can be drawn on the grounds that social security schemes and elderly pensions can be a welcome move in this direction. Findings of the study are reliable seeing that nationally representative survey of elderly illustrates the similar pattern. (IIPS &WHO, 2006; WHO Sage, 2007). They also indicate that the elderly individuals in socially disadvantaged groups report significantly higher odds of poor health than other caste groups.

A significant difference is observed in the health situation of the elderly living in rural areas when compared with urban areas. In this study, the place of residence emerges as a significant predictor for enjoying good health as the results connote that elderly individuals residing in urban areas enjoy better health than their rural counterpart. The marital status is of great relevance to elderly-related issues including their loneliness and overall well-being (Batra & Bhaumik, 2007; Tolstrup et al., 2006). In the present study, marital status of the elderly has emerged as a significant predictor affecting elderly health status implying that they need support for at least performing daily activities at later years of life. Elderly who were widowed/separated/divorced markedly reported

living in ill health, whereas a significant proportion of married elderly experienced good health. Some studies have witnessed that the elderly without living spouses are more prone to poor health and greater disability across all domains. However, the presence or absence of a spouse would not significantly alter the quality of life in a traditional joint family due to its potential defensive influence to the elderly (Hirve et al., 2010; Kapteyn, 2010).

The study has brought out that elderly individualôs educational attainment, marital status, place of residence and wealth status are significant predictors of self-reported health. Gender also appeared as a significant predictor of self-reported health among the elderly as female elderly are more likely to report poor health status. Thus, it can be inferred that the self-reported bad health of the elderly population is an attribute of their individual, community and past life experiences. Therefore, there is a need for an integrated approach to improve the health situation of the older population of India by focusing on all these identified issues so that overall well-being of the aging population can be improved.

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