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Self-perceived health and older adults in India: an empirical investigation into the associated factors

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Abstract

The physical, the mental and the social well-being constitute the health of an individual and a population in general. For populations passing through demographic transition, the life expectancies at various ages show an increasing trend over time. To ensure healthy ageing, in such populations, the later part of the life span of an individual should be free from chronic diseases and impairments. In this context, the prevailing health scenario is best measured in terms of the disease free life expectancies and the disability free life expectancies. At the individual level, the number of diseases and the number of impairments one suffers from give an account of his/her health. Besides these objective measures of health, the self-perceived health (also called the self-reported health) has received due attention in recent literature. This is due to its strong association with the life expectancy on one hand and with the future state of health on another. Moreover, including self-perceived health (SPH) in accounting for an individual's health is akin to giving him/her a say in his/her assessment of own health. Furthermore, it is opined that SPH captures those hidden aspects of health that go unnoticed otherwise. The present study investigates the socioeconomic factors associated with the SPH for the older adults in India. Data pertaining to the 60th round of the National Sample Survey of the older adults have been made use of for this purpose. SPH is usually measured on a 3-5 point ordinal scale in a relative perspective (comparing the present state of health with the state of health in an earlier reference period) or in a global perspective (absolute statement about the present state of health). The present study models the SPH (in a global perspective), measured on a 3-point ordinal scale, for its association with the immediate socioeconomic environment of the older adults using an ordinal logit regression model. The immediate socioeconomic environment of an older adult consists of the living arrangements, the financial dependence, the marital status, the number of children, the economic status of the household, the caste, the religion and the geographic region. Further, these associations have been studied after controlling for the objective measures of health, namely, the diseases, the impairments, the immobility and the relative state of health. The results indicate that the objective measures of health (the severity of immobility, the number of impairments and the number of diseases) and the relative change in the state of health during past one year contribute maximum to the information on the perception of the present state of

health. This is quite obvious. Although, the information provided by immediate socioeconomic environment is lesser, it is not insignificant. SPH was found better for more educated older adults. The financial dependence and poor status of the household reduce the chances of better SPH. On the other hand co-residence and large sized households increase the chances of better SPH. The older adults in rural areas are less likely to perceive a better health status when compared to their urban counterparts. It is quite obvious from the findings that SPH, which is an indicator of the future state of health, is found to be associated not only with the present state of health but also with the prevailing socioeconomic conditions of the older adults. The solution to better health, thus, has socioeconomic components that need appropriate and timely redress.

Keywords: India, older adults, self-perceived health, social determinants of health

Introduction

Human beings age and so do their populations. An ageing population is characterised by an increasing proportion of the older adults in the population. Unlike the non-older adults, most of the older adults are retired from active economic life, the marital status is at the risk of changing from married to widowhood and they may be dependent on others for care and sustenance. Further, prevalence of chronic health conditions are common among the older adults. The demographic transition, thus, infuses health transition in the society where the health scenario is predominated by chronic diseases. These changes have a profound impact on the quality of life of the older adults. Health being one of the salient integrands of the quality of life is affected by the socioeconomic environment of the older adults.

Health as such is too a multidimensional concept to adhere to a pin-point definition. However, the definition given by the World Health Organisation that incorporates into health the physical, the mental and the social well-being (WHO, 1978) serves the purpose well. In addition to the definition aggregate measures of health like life expectancies at various ages, the disease free life expectancy and the disability free life expectancy are often used to describe the health conditions prevailing in a population. At the micro level the health of an individual can be assessed by the number of diseases and impairments he/she suffers from. Added to these the self-perception about one's health has also attracted attention in recent literature on health (Babones, 2009; Bailas et al., 2003). Though it is a subjective measure of health in contrast to the other two objective measures described above, its salience has grown over time and there are reasons for that. Firstly, there is recognition of the need to give weight to a person's own perception of his/her health along with the objective indicators of health in health related studies. Equally important is the strong association that this indicator has been found to have with the future mortality (Huisman and Deeg, 2010; Idler and Benyamini, 1997; Jylhä, 2009 a) and future functional status (Bond et al., 2006; Hoeymans et al., 1997; Mossey and Shapiro, 1982).

Though simple to measure, the SPH has been criticised for being culture specific and that each person has a different frame of reference while assessing his/her state of

health. Nevertheless, its consistency that the lower states indicate high risk of future mortality is universal and that makes it appealing in health related studies. In other words, this measure not only incorporates the objective state of health but also what cannot be measured by these objective states. According to Jylhä (2009 b), the SPH is “crossroad between the social world and psychological experiences on one the hand and the biological world on the other.” Further, the social conditions prevailing at childhood also effect the perception about health at older ages (Nicholson, 2005).

At present the nationwide information on the socioeconomic state and status of health of older adults in India is available in the three rounds of the National Sample Survey conducted during 1985-86, 1994-95 and 2004. The latter rounds contain information on the self-perceived health also. There had been a few studies concerning the social aspects associated with the health of older adults. The studies on self-perceived health are lacking. Considering the increasing share of older adults in the demographic space of India and the concern for their well-being such investigations are warranted.

It is obvious that perceptions regarding health are modelled by the present state of physical health. Never the less, such studies are of potential interest to the social policy makers as they can establish how social factors contribute to self-perceived health that is an integral component of health related quality of life (HRQoL).

Data and methods

Similar to the social determinant of health there is a social perspective to the self-reported health. The immediate social environment constitutes of the living arrangements of older adults, their marital status, the number of children, their economic dependency, rural/urban place of residence and the economic status of their household. The caste, region and religion constitute the next immediate environment that may guide their perception about health.

SPH is measured on a 2, 3, 4 or 5 point ordinal scale either in a **global** perspective or in a **relative** perspective. The missing values have been imputed assuming a Poisson

distribution of the count of chronic diseases needing diagnosis. The improvement in status of health has been taken as an additional indicator of health.

The older adults were asked to rate their health on a 5 point ordinal scale. Due to low frequency in the lowest and highest categories these categories were collaged with their next higher/lower categories respectively. Eventually, the variable measuring perception about health is ordinal with three states namely poor, good and excellent representing an ascending order of sound health. It is assumed that on an underlying scale that measures the perception about health there is a threshold T_2 above which an older adult perceives his/her health as *excellent* (Figure 1).

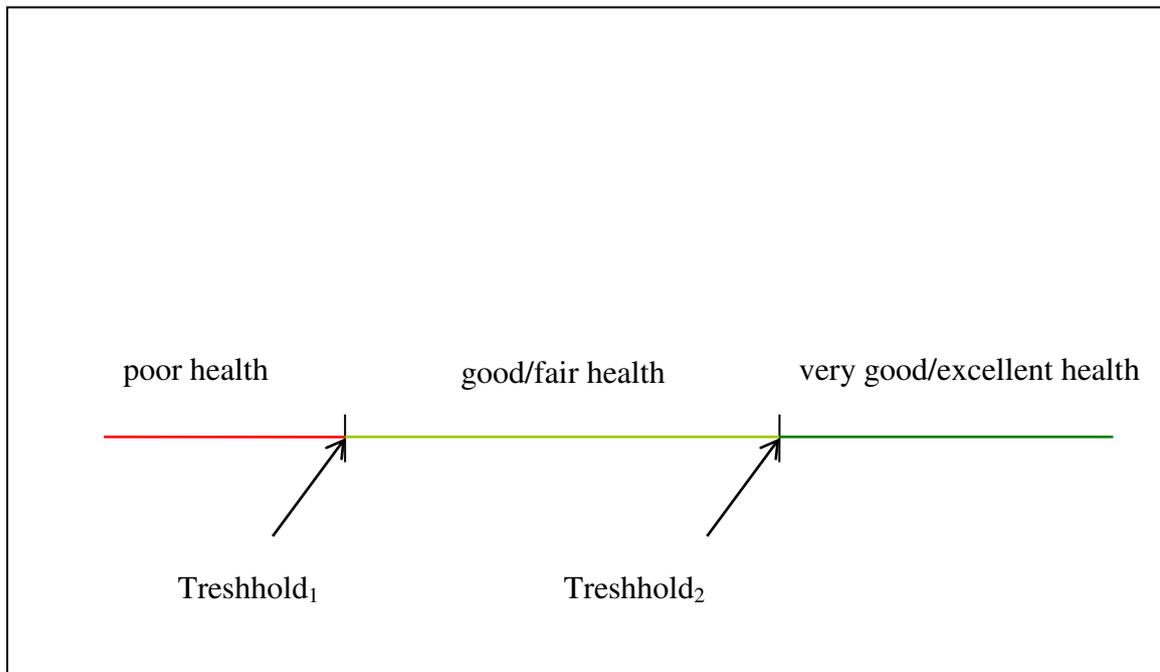


Figure 1: The three thresholhs of self – perceived health

There is another threshold T_1 ($T_1 < T_2$) below which an older adult perceives his/her health as *poor*. In between T_1 and T_2 he/she perceives his/her health as *good*. Letting p_1 , p_2 and p_3 denote the probabilities that an older adult perceives his/her health as poor, good and excellent respectively. The model associating the probabilities of perception about state of health and various potential factors is given by the following ordinal logit model

$$\ln\left(\frac{p_2 + p_3}{p_1}\right) = \alpha_1 + \sum_{i=1}^k \beta_i x_i$$

$$\ln\left(\frac{p_3}{p_1 + p_2}\right) = \alpha_2 + \sum_{i=1}^k \beta_i x_i + \sum_{i=1}^k \gamma_i x_i$$

where, β_i is the effect of factor x_i . Let the odd $\frac{p_2 + p_3}{p_1}$ be denoted by O_1 and the odd

$\frac{p_3}{p_1 + p_2}$ be denoted by O_2 . In case the effect of x_i is identical for the two odds (O_1 and

O_2) γ_i is 0 (the proportional odds assumption). The deviation from the proportional odds assumption is reflected in the non-zero values of γ_i 's. The changes in the effect of the associated variables may be felt when there is a significant change in the values of β_i 's over time. For the present study the data pertaining to the 60th round of the NSS has been utilised.

Findings

The perception of good or excellent state of health (not-poor) vs. the perception of poor state of health

Among the older males and the older females, the likelihood of perceiving health as *good or excellent* reduces with increase in the severity of immobility, the number of impairments, the number of diseases and the age (Table 1). The association between the perception about the relative state of health and the current state of health figures out prominently. Among the older females, the odds in favour of the perception of *good or excellent* health increase monotonically in the order as 6.64, 35.89, 68.65, and 98.40 times for the states of the relative state of health namely, somewhat worse, nearly the same, somewhat better and much better respectively (Table 1). This indicates that the changes in the status of health during an immediately preceding reference period have a lot to say about the perception about the current state of health. The corresponding values for older males are 9.68, 53.70, 77.14 and 139.62 respectively (Table 1).

Table 1: ordinal regression odds ratios for self-perceived health for selected independent variables

	Older Females		Older Males	
	effect (p-value)	odds ratio	effect (p-value)	odds ratio
ALPHA				
α_1	3.44(0.05)		4.94(0.01)	
α_2	-1.88(0.28)		14.40(0.00)	
BETA				
<i>Immobility</i>				
severe	-2.10(0.00)	0.12	-2.57(0.00)	0.08
partial	-1.60(0.00)	0.20	-1.58(0.00)	0.21
no difficulty®				
<i>Impairments</i>	-0.64(0.00)	0.53	-0.47(0.00)	0.62
<i>Chronic Diseases</i>	-0.63(0.00)	0.53	-0.75(0.00)	0.47
<i>Relative State of Health</i>				
much better	4.59(0.00)	98.40	4.94(0.00)	139.62
somewhat better	4.23(0.00)	68.65	4.35(0.00)	77.14
nearly the same	3.58(0.00)	35.89	3.98(0.00)	53.70
somewhat worse	1.89(0.00)	6.64	2.27(0.00)	9.68
worse®				
<i>age</i>	-0.07(0.13)	0.93	-0.14(0.01)	0.87
<i>age</i> ²	0.00(0.47)	1.00	0.00(0.02)	1.00

Note :p-value corresponds to the test of hypothesis that the corresponding effect is 0 against the alternative that it is not zero

Education affects the perception about health in a way that the illiterate and the below-matriculantes among the older adults are less likely to perceive their health as *good or excellent* when compared to the higher-educated ones (Table 2). In other words higher education implies better perception about sound health. A change in marital status from married to widowhood/widowerhood is a likely phenomenon. Among older males the odds in favour of perceiving *good or excellent* state of health are more by 1.16 times among the widowers than their currently married counterparts (Table 2). In contrast, among the others (never married/divorces/separated) the odds in favour of *good or excellent* state of health are lesser by 0.58 times when compared to their married counterparts (Table 2). Such association between the marital status and perception about health is not visible among the older females.

Economic condition, individual (economic dependence on others) and household (the economic stratum a household belongs to) influence the perception about health in a significant way. The older adults who are completely dependent on others are less likely to perceive a *good or excellent* state of health when compared to their not-

dependent not-supporting counterparts. This effect is more felt among older males (0.61) when compared to the older females (0.74). Interestingly, among the older males, those who are economically supporting others are 1.65 times more likely to perceive health as *good or excellent* when compared to the ones who are not-dependent and not-supporting (Table 2).

Table 2: ordinal regression odds ratios for self-perceived health for selected independent variables

	Older Female		Older Male	
	effect (p-value)	odds ratio	effect (p-value)	odds ratio
<i>Level of Education</i>				
Illiterate	-0.34(0.02)	0.71	-0.24(0.01)	0.79
below matriculation	-0.13(0.39)	0.88	-0.17(0.02)	0.85
Matriculation and above®				
<i>Marital Status</i>				
Others	-0.38(0.13)	0.68	-0.55(0.04)	0.58
Widowed	0.06(0.21)	1.06	0.15(0.03)	1.16
currently married®				
<i>no. of children</i>	0.00(0.73)	1.00	-0.01(0.63)	0.99
<i>Dependence</i>				
completely dependent	-0.31(0.00)	0.74	-0.49(0.00)	0.61
partially dependent	0.08(0.54)	1.08	0.00(0.99)	1.00
not dependent: supporting	-0.01(0.93)	0.99	0.50(0.00)	1.65
not dependent: not supporting®				
<i>Size of the Household</i>	0.03(0.00)	1.03	0.04(0.00)	1.04
<i>Household Economic Condition</i>				
first quintile	-0.53(0.00)	0.59	-0.58(0.00)	0.56
second quintile	-0.38(0.00)	0.68	-0.35(0.00)	0.71
third quintile	-0.12(0.11)	0.89	-0.34(0.00)	0.71
fourth quintile	-0.04(0.63)	0.96	-0.13(0.05)	0.88
fifth quintile®				

note: p-value corresponds to the test of hypothesis that the corresponding effect is 0 against the alternative that it is not zero

The household economic conditions are found to be directly associated with the perception of sound health. When compared to the highest economic stratum (the fifth quintile) the odds of perceiving *good or excellent* state of health reduce by 0.96, 0.89, 0.68 and 0.59 times (Table 2) among older females as one move from the fourth to the first quintile. The corresponding figures for the older males are 0.88, 0.71, 0.71 and 0.56 respectively (Table 2).

Living alone lowers the likelihood of perception of *good or excellent* health by 0.86 times among older females and 0.77 times among older males when compared to

living as a co-resident (Table 3). Even here, the relative decrease is more for older males when compared to older females. In addition to living arrangements, the size of the household plays a significant role in making older adults feel healthier. The odds in favour of the perception of *good or excellent* health increase by 1.03 times for older males and 1.04 times for older females with each unit increase in the size of the household (Table 2).

Table 3: ordinal regression odds ratios for self-perceived health for selected independent variables

	Older Female		Older Male	
	effect (p-value)	odds ratio	effect (p-value)	odds ratio
<i>Living Arrangements</i>				
Alone co-residence®	-0.16(0.04)	0.86	-0.26(0.00)	0.77
<i>Place of Residence</i>				
Rural Urban®	-0.33(0.00)	0.72	-0.22(0.00)	0.81
<i>Caste</i>				
scheduled tribes	0.37(0.00)	1.45	0.01(0.94)	1.01
scheduled castes general castes®	-0.04(0.46)	0.96	-0.16(0.01)	0.85

Note: p-value corresponds to the test of hypothesis that the corresponding effect is 0 against the alternative that it is not zero

The place of residence, caste and region also has significant variations with respect to the perception of health. Older adults residing in rural areas are less likely to perceive their health as *good or excellent* when compared to their urban counterparts (Table 3). The older adults belonging to scheduled tribes are more likely to perceive a state of *good or excellent* health whereas the older adults belonging to the scheduled castes are less likely to do so when compared to the older adults belonging to the general castes (Table 3).

The perception of excellent health vs. the perception of poor or good (not-excellent) health

The effects for the log odds $\ln\left(\frac{p_3}{p_1 + p_2}\right)$ are similar to the log odds $\ln\left(\frac{p_2 + p_3}{p_1}\right)$ but

for a few independent variables. Hence, only the relevant results are discussed in present section.

Among the older females, the odds in favour of perceiving health status as *excellent* reduce by 0.38 times with a unit increase in number of diseases. Another feature among the older females is that the lesser the economic status of their households the less likely they perceive their health status as excellent. Those who report relative improvement in health status as *much better* are 1074.92 times more likely to report excellent health than those who report the relative improvement in health status as *worse*.

Unlike among the older females, the effects for the two log odds differ for impairments, perception about relative state of health, individual characteristics, region and caste among older males. The odds in favour of perceiving the health status as excellent reduce by 0.34 times with a unit increase in the number of impairments. The role of change in relative state of health over the past one year is evident. Those older males, who experienced *nearly the same*, *somewhat better* or *much better* state of health, when compared to their health a year ago, are respectively 11.94, 16.44 and 139.77 times more likely to report their health as excellent when compared to those older males whose health has deteriorated to worst.

The negative effect of increasing age evident as with each year of increase in age the odds in favour of perceiving health status as excellent reduce by 0.62 times. Illiterate older males are also less likely to perceive their health status as excellent as their matriculate counterparts. The economic dependency and the number of children also reduce the chances of perceiving an *excellent* status of health.

Discussion

The investigation of the effect of relative state of health and the role of household and the individual economic status on their effect on the self-perceived health is a distinguishing feature of the present study. Not only the objective measures of health dictate the perception but also the relative change in the health status as experienced by an older adult during last one year effects their perception about health. The relative improvement in health status over last one year shapes perception about health in a very significant way. Apart from these health factors the individual characteristics, household composition and economic condition and various cultural

factors also have a significant role in shaping the perception about health. Among the individual characteristics the roles of education and economic dependency are worth mentioning. It can be said that education helps in perceiving a better status of health whereas; economic dependency forces an older adult to perceive a lesser health status.

The economic factors operate at household levels also. Older adults in poorer households perceive poor health status. The finding that older adults living in poor households are more likely to report better health status is not supported by the present population of older adults. It also comes out from the present analysis that co-residence and larger size households are congenial for better perception of health status. To put it in another terms, living in multigenerational households enhances the chances of feeling healthier. With the increasing number of categories of the response variable the analysis becomes lengthier due to increase in the number of parameters.

The older adults in rural areas are less likely to perceive a better state of health when compared to their urban counterparts. The possible reasons could be lesser infrastructure and particularly health infrastructure in the rural areas. After the entire basic question an investigator asks is *what makes them feel healthier?* And the question a policy maker has to address is *how to make them feel healthier?* Obviously, a large chunk of the proposed solutions lie in the prevailing health infrastructure of a society. But, this is not of the preview of the present investigation. What the present investigation emphasises is that there are also social and economic dimensions to addressing the question of perception of better health status among the older adult population. Consequently, there are social and economic solutions to this and these solutions can contribute their bit in improving the perception about health among the older adults. Among the broad set of social and economic factors the factors that can be controlled and regulated to benefit the older adults can be identified.

Though the self-rated health is assuming strength among the indicators of HRQoL, it is not an objective entity. Thus, it cannot be measured objectively. It is quiet possible that a state of health that is perceived as *good* by one may be perceived as *very good* or *excellent* by the other. Thus, there is always an underlying assumption that a state which is perceived as good by one will be perceived as good by all and similarly the perception about other states of health is uniform among the study population. This

assumption may not be valid always. The studies that use only the information on the present socio-economic state may be incomplete in the sense that the exposures during the childhood and adulthood may shape the perceptions at the older ages. The lack of data on these aspects prevents the present study to incorporate and investigate these factors.

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