

Pattern of Self-perceived health, Immobility and Hospitalization among Elderly in India

Abstract

In this study, we examined the pattern of perceived health status, immobility, and hospitalization among elderly of India using 60th round of National Sample Survey data collected during 2004. Bivariate and multivariate analysis is used to understand the differentials and determinants of outcome variable among elderly of India. Result shows that age group, economic dependency, education, sex, and living arrangement play an important role in health status of elderly. The most common diseases elderly suffers from are eye ailments, cardiovascular diseases and joint pain as reported. Logistic regression result shows that age, sex, dependency and living arrangement as the most important factor affecting mobility and hospitalization of elderly. Indian elderly has a poor health status either in terms of self-assessed or mobility or hospitalization. Therefore, special attention to elderly particularly focusing on female, living alone, poor, 70+ aged and elderly of northern and eastern regions is required.

Key words: Elderly, Self-perceived Health Status, Mobility, Hospitalization

Introduction

Rapid decline in fertility and mortality rates in the late twentieth century has resulted in shift in stages of demographic transition as well as in age structure of developing countries. As a result, proportion of 60+ population has increased in absolute as well as relative terms due to increase in life expectancy and shrinking fertility (UN, 2005). As per the United Nation report on ageing, the number of global elderly persons is likely to increase from 606 million in 2000 to 1.9 billion by 2050 (UN, 2002). The increase is expected to be very high in the less developed regions where the number of older people will increase from 375 million in 2000 to 1.6 billion in 2050. India which is characterized by a rapid decline in fertility and mortality during recent years is going to be home of elderly in the coming years (Rajan et al., 1999; Rajan et al., 2003). Moreover, the country has one of the fastest growing populations of elderly persons in the world (Rajan et al., 1999; Sengupta and Agree, 2003). At present, the country accounts about 8.1 percent of the global elderly population (60+), which is projected to be 20 percent by 2050 (UN, 2007). The 2001 census has shown that the elderly

population of India was 77 million. While the elderly constituted only 24 million in 1961, it increased to 43 million in 1981 and to 57 million in 1991. The proportion of elderly persons in the population of India raised from 5.6 per cent in 1961 to 7.5 per cent in 2001.

Under rapid economic development, socio-cultural, and demographic changes, the rapid growing elderly population in the country needs special attention in several aspects. First, it needs a health care system in the country which insures the good health status and assures the disability free life with longevity among elderly. Second, to insure the financial security of elderly, as the majority of elder population in the country is economically dependent on working population. Third, beside the health and economic security, social support & well-being is another most important aspect which needs special attention. Because of rapid social changes increasing tendency of nuclear family norms, massive migration, social and familial insecurity, and absence of caretaker are emerging problems among elderly of India. Finally, combination of all these requirements poses' major challenge form policy and planning point of view.

In opposition, existing literature suggests that Indian elderly facing the problems of growing prevalence of morbidity, however the significant increase in longevity among elderly is on continuation (Alam, 2000). But as the literatures suggest the added year of life is often accompanied by chronic physical and psychological impairments (Nayar, 1999; Alam, 2000; Shrestha, 2006; Sobba and Reddy, 2006; Konjengbam, et al., 2007). Living longer but with disabilities is nowhere near as enjoyable as living longer with good health (Cutler, 2001). Thus proportion of elderly living longer with disabilities required greater amount of medical expenditure and curtail the saving of family income (Spillman, 2004).

As majority of the elderly population suffer from diseases, thus the health status of older population is most important aspect of study of elderly (Nandal et al., 1987; Rajan, 2006). A number of factors have been identified as determinant of health status and health care among elderly in India. For example, income and educational attainment plays key role for health seeking behavior among elderly (Gupta, 2001). Gender is also appeared as

determinant of health seeking treatment among elderly of India. For instance, the female older persons in Kerala had greater likelihood of seeking treatment than male (Agrawal et al., 2009). Moreover, there are very high gender differential in reporting of health status among elderly, as females are more likely to report morbidity and mobility. Moreover, nutritional status of elderly is appeared as determinant of health status particularly among poor section of the developing countries (Launer et al., 1994; Visser et al., 1994). For instance, body fat content and its distribution are helpful in assessing the risks for cardiovascular disease, hypertension, diabetes and dislipidaemia.

Recent study on Indian elderly suggests a growing prevalence of morbidity and poor health status along with significant increases in longevity among them (Alam, 2000). Thus, while in the country where maternal and child health care indicators are still far from goals, ageing has emerged as another long term burden over the country's health care system. Like many developing countries, the health system of India is inadequate to promote, support, and protect health and social well-being of the elderly due to lack of human and financial resources. The prevailing situation stands as major concern among policy makers to extend socio-economic security and proper health care for their ageing population specifically to the poor section of the society. Therefore, the necessity of analyzing the current morbidity pattern and demand for healthcare among elderly is of importance.

Besides this, very few studies have shown the pattern of health status and mobility of elderly in India (Mini, 2008; Agrawal et al., 2009; Dhak, 2009). But in our best knowledge none of the existing literature focused on determinants and pattern of living condition of and self-reporting health status, immobility and morbidity among elderly in the country. Considering the need the present paper provides an extensive knowledge on pattern and correlates of self-reported health status, mobility, hospitalization, and occurrence of diseases among elderly in India.

Data and Methodology

The study is based on data collected by National Sample Survey Organization (NSSO) in India. The 60th round of the survey collected during

January to June 2004, provides information on morbidity, healthcare, and the living condition of the aged in India. The National Sample Survey is a nationally representative annual survey, conducted by Ministry of Planning and Programme Implementation, Government of India, concentrating on one of current socio-economic issues. The 60th round of the survey covered 34,831 samples of (male 51%, female 49%, urban 36 % and rural 64 %) elderly persons aged 60 and above.

Dependent Variables

Dependent variables used in the study are:

- i) *Self perceived health status*: (excellent/very good, good/ fair, and poor) is defined based on question of perception about current health status. It is a subjective assessment about own health status which is recognized by WHO as an instrument for monitoring health (De Brun et al., 1996).
- iii) *Physical Immobility*: is used as other health indicator where elderly were asked whether they are physical immobile /confined to bed/ confined to home. In this study, confined to bed or confined to home are consider as physical immobile.
- iii) *Self-reported and hospitalized ailments*: Self-reported disease is assessed for any reported disease in last 15 days prior to the survey period, while hospitalized ailment is assessed based on diagnosed diseases in last 365 days prior to the survey. Further, all diseases (either self-reported or based on hospitalization) are classified into three groups) namely – a) communicable diseases, b) non-communicable diseases, and c) injuries. We have followed the similar categorization scheme of International Classification of Disease pattern of the World Health Organization (WHO, 1992).

Independent Variables

Several pertinent socio-economic and demographic variables are used to understand the possible determinants of self-reported health status, immobility, and morbidity among elderly of India. The variables considered in the study are: age¹ (60-70 and 70+), sex (male/female), religion (Hindu,

¹ Elderly were divided under two age category i. e. 60-70 years and 70+ years. Our intention is to understand that which group of elderly is more vulnerable in terms of health status, ad occurrence of diseases.

Muslim, Christian, and others) caste (scheduled castes and scheduled tribes – SCs/STs, other backward classes – OBC Others), place of residence (rural/urban), educational level (No education, below middle, middle complete, and high school & above) and economic dependency (not dependent/dependent), living arrangement of the elderly (living alone, living with spouse, Spouse & Other Members, living without spouse but with others), and living condition² (low, medium, and high).

Methods

Descriptive analysis is used to understand the pattern and differentials in selected outcome variables among elderly in the country. Cross-tabulation is used to understand the socio-economic differentials in self-perceived health status, immobility, and morbidity among elderly in India. Multivariate technique like ordinal logistic regression and binary logistic regression is used to know the significant determinants self-reported health status, immobility, and morbidity among elderly in India. Ordinal regression is used for self-reported health status, as the variable is measured on ordinal scale (excellent, very good, fair, good, poor). But in the analysis we have clubbed the responses into three categories (excellent/very good, fair/good, poor) in order to make the interpretation convenient. Binary logistic regression is used in case of physical immobility and whether hospitalized, as these variables are dichotomous in nature (0=otherwise, 1=yes). Analysis is performed using SPSS 16.0 software packages.

Results

Socio-economic profile of sample population

Table 1 presents percentage distribution of elderly (age 60-70 and 70+) population according to their living arrangements, standard of living, and other key socio-economic characteristics in India during 2004. Among elderly aged 60-70, equal proportions are male and female. Most of the elder

²A living condition variable was created using Principal Component Analysis (PCA) using variables like type of latrine, access to drinking water, water treatment, structure of the house, type of drainage and source of drainage which are important factors affecting health status.

population are from rural areas (76%); belong to Hindu religion (84%) and Other Backward Castes (40%) and majority of them are uneducated (65%). Result shows that three-fifths of population aged 60-70 was dependent on other family members indicating that 51% were living with their spouse and other family members. Higher proportion of elder population belonged to low standard of living. For instance, 38% elderly aged 60-70 were lived in a household with low standard of living. Regional distribution of elderly population shows comparatively higher proportion of elder people among Central and South region compared to North and North-east region. Similar pattern is observed for the elder people aged 70+.

Prevalence of perceived health status, mobility, morbidity, and hospitalization among elderly in India

Table 2 presents an overview about health perception, physical mobility, occurrence of diseases, and hospitalization among elderly in India. In total, majority of elderly (71%) reported that their health condition is good/fair, while 24 percent perceived that they were living in poor health conditions. Only 5 percent elderly reported that they are enjoying excellent/good health status. Physical mobility among elderly was almost universal. For instance, 92 percent elderly reported that they do not face any problem in physical mobility. However, the proportion varies across the age groups of the elder population, as physical mobility is comparatively low among elderly aged 70 and above than that of aged 60-70, 84 percent and 96 percent respectively. More than one two-thirds of elderly reported that they do not have any kind of diseases at the time of survey. Similarly, majority of elderly (94%) reported that they were not hospitalized. Similar results are observed across the age groups of the elderly.

Differentials in perceived health status by key background characteristics among elderly

An attempt has been made to understand the differentials in perceived health status among elderly in India and result is given in table 3. The perceived health status is categorized into three categories - excellent/very good, fair/good, and poor. Result shows that poor health status reportedly about twice higher among elder aged 70 and above (35%) compared to (18%) among elder aged 60-70 years. On contrast, 74 percent of elder aged 70+

reported that they are in good/fair health status while 62 percent elderly of age 70 and above reported that they are enjoying the same health status. Self perceived poor health status is higher among women than that of male. Similarly it varies across the religious groups – 32 percent among Muslims vs. 20 percent among other religion. Educational attainment of elderly is inversely associated with perceived poor health status while directly associated with excellent/very good health status. Similarly, poor health status is very low among self-dependent elderly (13%) compared to those who were dependent on other family members (29%). Similar result is observed with living arrangement of elderly. For instance, 29 percent of elderly living with other reported poor health status compared to those living with spouse and other family members (20%). Regional variation in self reported health status reflects that self reported poor health status is highest among elderly of East region (31%) while it is lowest among elderly of West region (17%).

Differentials in physical immobility, occurrence of diseases, and hospitalization among elderly by key backgrounds characteristics in India

Table 4 shows the differentials in physical immobility, occurrence of disease, and hospitalization status among elderly in India, Differentials in physical immobility largely varied across the age group of the elderly. For instance, 16 percent of elderly aged 70+ were immobile compared to 4 percent of elderly aged 60-70 years. Similarly, physical immobility was highest among Christian (11%) followed by Muslims (10%), and Other religious groups. Uneducated elderly has comparatively higher proportion of physical immobility, however differentials is marginal across the educational groups. Interestingly we observed that elderly depends on other family members are more immobile than those who are self-dependent. Similarly, elderly lived with other family members are more immobile than those who were living with their spouse or alone. Regional differentials in immobility were minimal.

The second column of the table shows occurrence of any diseases among elderly. In total 31 percent elderly has occurrence of any self-reported

diseases. Percentage of diseases occurrence is reportedly higher among elderly belong to urban areas, Muslims religion, other castes, and among more educated group. Similarly, occurrence of any diseases is higher among those who depend on other family members, and belong to high standard of living. Regional variations in occurrence of diseases among elderly is highest in South (40%) whereas lowest in North region (24%). The last column of the table shows that only 6 percent of elder population was hospitalized in the country at the time of survey. Proportion of hospitalization is considerably higher among Christian (15%) than other religious group. In general the proportion of hospitalization does not vary much across the background characteristics. However, we observed that wherever the occurrence of diseases is high the proportion of hospitalization is also high among the group.

Prevalence of major morbidities among elderly in India

Table 5 shows proportion of self-reported diseases and of hospitalization among elderly in India. Major diseases are classified into – communicable diseases, non-communicable diseases, disabilities, and accidental/injuries/poisoning etc. Among major diseases occurred to elderly, reporting of non-communicable diseases is highest (68%) followed by communicable disease (18%), disabilities (10%), and accidental/injuries/poisoning etc. Among communicable diseases proportion of eye ailment is reportedly higher (9%) followed by febrile illnesses and etc. Among non-communicable diseases, majority of elderly were suffered with disorders of joints and bones (15%) followed by hypertension (10%), bronchial asthma (8%), and diabetes (6%) etc. Table shows that majority of elderly were hospitalized in case of non-communicable diseases (52%) followed by communicable diseases (28%), accidental/injuries/poisoning (7%) etc.

Determinants of self-perceived health status, physical immobility and hospitalization among elderly in India

We have used ordinal logistic regression to assess the plausible determinants of self-perceived health status among elderly in India. As the outcome

variable is ordinal in nature we used ordinal logistic regression. In the model several covariates such as age, sex, type of residence, religion, caste, educational level, dependency on other family members, living arrangement, living condition, and region are included (Table 6). Result shows that perceived excellent health status is significantly higher among elderly aged 60-70 and among those who are independent. For instance, the odds is 1.84 and 2.08 respectively. On the other hand perceived health status is significantly poor among male, uneducated elderly, and among those who are living alone and living in poor socio-economic status.

In order to understand the possible determinants of physical immobility and hospitalization among elderly in India binary logistic regression is used. A number of background variables such as – age of elderly, sex, place of residence, religion, caste, educational attainment, dependency on family members, living arrangements, standard of living, and regions of India is included in the analysis and result is presented in table 7 in forms of odds ratios with their 95% of confidence interval. Result shows that elderly of age 70 and more were significantly more immobile than elderly of lower age group. For instance, odds of immobility among elderly aged 70+ were 3.22. Sex of elderly is appeared as significant determinants of immobility as it was significantly less likely (0.86) among female compared to male. The odds of immobility is significantly higher among Muslims (1.17), elderly depend on other family member (3.48), lived with other family member (1.71), and comes from North-east and East region.

Second column of the table show the determinants of hospitalization among elder population in India. Likewise immobility, age is also appeared as significant determinant of hospitalization among Indian elderly. For instance odds of hospitalization are significantly higher (1.33) among elderly of age 70 and above compared to aged 60-70. Female were significantly less hospitalized (odds is 0.71) than male elderly. Elderly belong to OBC and other castes were significantly more likely to hospitalize that SCs/STs. Level of education is significantly and directly associated with hospitalization among elder in the country. Similarly, elderly belongs to medium and high standard of living is significantly more likely to hospitalize than that of low

standard of living. For instance, the odds were 1.18 and 1.32 for medium and high standard of living respectively.

Discussion and Conclusion

Using the data of 60th round of National Sample Survey Organization conducted in 2004, the present paper provides picture of self perceived health status, immobility, and diseases occurrence among elderly in India. The results shows majority of Indian elderly are under poor socio-economic conditions. For instance, among elder population of India, majority are belong to rural area, are uneducated, and depend on other family members. Similarly substantive proportion belongs to lower standard of living.

Findings demonstrate that health situation among elderly is awful in India with about one-fourth of the elderly person reporting poor health status although it might be higher than reported due to biasness in reporting (Joshi et al., 2003). Also with increased age the reporting of poor health status increases. Reporting of poor health status is higher among females than male despite they enjoy higher life expectancies than their male counterpart (R.G.I., 2007). Those elderly staying in rural area and are fully dependent on others for survival are more likely to report their health status as poor than urban and economically independent older age people. However, unlike to self-reported perceived health status, proportion of physical immobility is very less among elder population in the country, though immobility is higher among elder age 70+ than age 60-70.

Our result is showing a mismatch in occurrence of diseases when it is assessed based on self-report and hospitalization. It may be possibly because of reporting biasness or varying reference period. Majority of elderly in the country is suffered with non-communicable diseases either self-reported or based on hospitalization, as majority of them were hospitalized for non-communicable diseases in the country. Among non-communicable diseases majority were suffered with disorders of joints and bones, hypertension, heart diseases, and bronchial asthma. Among communicable diseases eye ailments and febrile illness is appeared as major ailment.

Multivariate analysis shows that age group of elderly is appeared as significant determinant of perceived health status, immobility, and

occurrence of diseases among elderly in India. Health status of elderly age 70+ is significantly poor for all three outcome variables i.e. self-perceived health status, immobility, and occurrence of ailments (either self-reported or hospitalized). Beside the age group, educational attainment, dependency on family members, and standard of living is appeared as significant determinants of perceived health status, immobility, and morbidity among elderly in the country. Gender is also appeared as significant determinant of hospitalization among elder. For instance, female elder population is less likely to hospitalize than male elder population. The finding is in similar line with previous study (Agarwal et al., 2009).

Thus it can be concluded that Indian elderly has a poor health status either self-perceived or mobility or hospitalization. It calls for special attention to elderly specially focusing on female, living alone, poor, 70+ aged, and elderly of northern and eastern regions.

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Table 1 Percentage distribution of aged population by various socio-economic, demographic and household living condition characteristics.

Background Variables	Age of the elderly		Total (N)
	60-70	70+	
Sex			
Male	49.4	51.2	17750
Female	50.6	48.8	17081
Type of Residence			
Rural	76.4	74.3	22265
Urban	23.6	25.7	12566
Religion			
Hindu	84.4	84.2	27959
Muslim	9.5	8.7	3660
Christian	2.4	3.4	1766
Other	3.7	3.6	1443
Caste			
STs & SCs	26.2	19.9	13343
OBC	39.8	39.9	12948
Others	34.0	40.2	8531
Educational Level			
No Education	65.4	66.7	21301
>Middle	19.0	20.7	7418
Middle Complete	6.1	5.2	2325
High school Above	9.4	7.5	3771
Dependency			
Not dependent on other	39.8	23.0	11800
Dependent on other	60.2	77.0	22429
Living arrangement			
Alone	5.5	4.7	1509
Spouse only	13.2	10.3	3875
Spouse and others	50.6	36.2	16127
Others	30.8	48.8	12593
Living condition			
Low	38.1	31.0	10610
Medium	35.2	36.7	11328
High	26.6	32.3	12850
Mobility			
Immobile	4.1	15.6	3224
Mobile	95.9	84.4	30821
Region			
North	12.1	14.3	5551
North-East	2.9	1.8	3324
East	21.0	18.7	4153
West	15.9	16.5	6433
Central	23.4	22.3	7099
South	24.8	26.6	8271
India	64.8	35.2	34831

Table 2 Self reported health, Mobility, Morbidity and hospitalization by age groups among elderly in India, 2004.

Health and Morbidity	Age of the elderly		Total
	60-70	70+	
Perception about health			
Excellent/very good	17.6	35.0	23.6
Good/fair	75.9	62.0	71.1
Poor	6.5	3.0	5.3
Mobility			
Immobile	4.1	15.6	8.1
Mobile	95.9	84.4	91.9
Have any disease			
No	72.4	62.5	69.0
Yes	27.6	37.5	31.0
Hospitalization			
Not hospitalized	94.7	92.3	93.9
Hospitalized	5.3	7.7	6.1

Table 3 Perception of elderly about their own health status by different background characteristics.

Background variables	Self perceived health status		
	Poor	Fair/good	Excellent/Very good
Age			
60-70	17.6	75.9	6.5
70+	35.0	62.0	3.0
Sex			
Male	21.5	71.7	6.8
Female	25.8	70.4	3.9
Type of Residence			
Rural	24.5	70.7	4.9
Urban	21.2	72.2	6.7
Religion			
Hindu	22.7	71.9	5.3
Muslim	32.4	63.6	3.9
Christian	28.0	67.0	5.0
Other	20.3	71.1	8.6
Caste			
ST & SC	24.6	70.4	5.0
OBC	23.7	71.7	4.6
Others	23.0	70.7	6.3
Educational Level			
No Education	25.7	70.2	4.1
>Middle	22.4	71.6	6.0
Middle Complete	18.8	73.0	8.1
High school Above	14.0	75.0	11.0
Dependency			
Not dependent on other	13.1	77.7	9.2
Dependent on other	29.1	67.6	3.3
Living arrangement			
Alone	23.0	71.7	5.3
Spouse only	22.7	72.5	4.7
Spouse and others	19.8	73.6	6.7
Others	28.8	67.4	3.8
Living condition			
Low	26.5	69.3	4.1
Medium	23.9	71.1	5
High	19.7	73.1	7.2
Region			
North	20.4	73.2	6.5
North-east	22.8	73.4	3.8
East	30.7	64.6	4.7
West	17.0	76.6	6.3
Central	25.5	69.1	5.4
South	22.6	72.7	4.6
Total	23.6 (8216)	71.0 (23137)	5.3 (1828)

Table 4 Physical Mobility, Morbidity Level and Hospitalization by different background variables, 2004.

Background Variables	Physically Immobile	Have Any Disease	Whether Hospitalised
Age			
60-70	4.1	27.6	5.3
70+	15.6	37.5	7.7
Sex			
Male	6.9	30.8	6.8
Female	9.3	31.2	5.5
Type of Residence			
Rural	7.9	28.9	5.4
Urban	8.6	37.6	8.6
Religion			
Hindu	7.8	29.9	5.8
Muslim	9.9	37.1	6.6
Christian	11.1	47.9	14.9
Other	8.8	30.3	6.6
Caste			
STs & SCs	7.7	25.6	4.4
OBC	7.7	28.9	6.3
Others	8.8	37.0	7.2
Educational Level			
No Education	8.8	28.0	4.8
>Middle	7.6	36.9	9.1
Middle Complete	5.3	35.9	8.5
High school Above	5.7	37.4	8.3
Dependency			
Not dependent on other	2.4	26.8	5.5
Dependent on other	11.0	33.7	6.6
Living arrangement			
Alone	5.2	31.0	4.7
Spouse only	4.8	33.7	6.7
Spouse and others	6.1	29.4	6.5
Others	12.0	33.3	6.0
Living condition			
Low	8.1	26.2	4.0
Medium	8.0	30.3	6.1
High	8.2	37.9	9.0
Region			
North	8.0	23.8	5.5
North-East	8.9	33.0	3.7
East	9.0	26.7	4.1
West	6.9	34.5	7.9
Central	7.7	26.6	3.5
South	8.4	39.7	9.7
Total	8.1	31.0	6.1

Table 5 Major self reported and hospitalized morbidities among elderly in India, 2004

Morbidities	Self Reported	Total (N)	Hospitalised	Total (N)
<i>All Communicable diseases</i>	18.2	2672	28.3	1517
Respiratory including				
ENT ailments	2.9	458	2.7	140
Eye ailments	9.3	1246	12.2	651
Tuberculosis	1.2	221	2.5	155
Febrile illnesses	3.3	461	5.5	274
<i>All Non-Communicable diseases</i>	68.4	9984	52.3	2981
Heart disease	5.3	937	9.7	544
Hypertension	10.2	1546	4.4	254
Gastritis/gastric or peptic				
Ulcer	4.3	661	4.0	248
Bronchial asthma	7.6	1084	7.4	358
Disorders of joints and				
Bones	15.3	1927	3.7	197
Neurological/Psychiatric				
disorder	2.8	459	4.5	262
Diabetes mellitus	5.5	874	4.3	229
<i>Disabilities</i>	10.0	1346	3.1	217
<i>Accidents/injuries/poisoning</i>	1.4	264	6.9	406
<i>Other Diagnosed diseases</i>	8.5	1190	11.2	643
<i>Other Non-diagnosed diseases</i>	3.5	446	1.0	66
Total (N)		14535		5613

Table 6 Ordinal logistic regression showing odds ratio of self assessed poor health status of elderly by background variables.

Background Variables	Exp (B)	95% C.I.
Age		
60-70	1.84***	1.74, 1.94
70+	1.00	
Sex		
Male	0.93**	0.88, 0.99
Female	1.00	
Type of Residence		
Rural	0.95	0.89, 1.01
Urban	1.00	
Religion		
Hindu	0.90	0.79, 1.03
Muslim	0.66***	0.56, 0.77
Christian	0.92	0.77, 1.11
Other	1.00	
Caste		
STs & SCs	0.99	0.92, 1.06
OBC	0.98	0.92, 1.05
Others	1.00	
Educational Level		
No Education	0.76***	0.68, 0.84
>Middle	0.80***	0.72, 0.89
Middle Complete	0.83***	0.73, 0.94
High school Above	1.00	
Dependency		
Not dependent on other	2.08***	1.95, 2.22
Dependent on other	1.00	
Living arrangement		
Alone	0.79***	0.70, 0.90
Spouse only	0.79***	0.72, 0.86
Spouse and others	1.09**	1.02, 1.16
Others	1.00	
Living condition		
Low	0.75***	0.69, 0.81
Medium	0.80***	0.74, 0.86
High	1.00	
Mobility		
Immobile	0.11***	0.10, 0.12
Mobile	1.00	
Region		
North	1.03	0.95, 1.12
North-East	1.29***	1.16, 1.44
East	0.68***	0.63, 0.74
West	1.27***	1.17, 1.39
Central	0.82***	0.76, 0.88
South	1.00	

Note: *p<0.1 **p<0.05 and ***p<0.01. Category with value 1 is served as reference category. Dependent variables: self reported health status: 0 'poor' 1 'good' 2 'excellent'.

Table 7 Logistic regression show odds ratio of Physical Mobility and Hospitalization by different background variables.

Background Variables	Physically Immobile		Hospitalization	
	Exp(B)	95% CI	Exp(B)	95% CI
Age				
60-70®				
70+	3.22***	2.98, 3.49	1.33***	1.25, 1.42
Sex				
Male®				
Female	0.86***	0.79, 0.94	0.71***	0.66, 0.77
Type of Residence				
Rural®				
Urban	1.01	0.91, 1.11	0.95	0.87, 1.03
Religion				
Hindu®				
Muslim	1.17**	1.03, 1.32	1.03	0.93, 1.14
Christian	1.11	0.92, 1.34	0.96	0.83, 1.12
Other	1.02	0.84, 1.25	1.12	0.95, 1.31
Caste				
STs & SCs®				
OBC	0.98	0.88, 1.09	1.16***	1.06, 1.27
Others	1.10*	0.99, 1.23	1.26***	1.15, 1.38
Educational Level				
No Education®				
>Middle	0.92	0.83, 1.03	1.25***	1.16, 1.36
Middle Complete	0.92	0.77, 1.10	1.28***	1.12, 1.45
High school Above	1.10	0.93, 1.30	1.35***	1.20, 1.52
Dependency				
Not dependent on other®				
Dependent on other	3.48***	3.08, 3.93	1.42***	1.32, 1.53
Living arrangement				
Alone®				
Spouse only	1.20	0.92, 1.56	1.29**	1.06, 1.56
Spouse and others	1.18	0.93, 1.51	1.18*	0.99, 1.41
Others	1.71***	1.35, 2.17	1.11	0.93, 1.32
Living condition				
Low®				
Medium	0.95	0.86, 1.05	1.18***	1.08, 1.28
High	0.98	0.86, 1.11	1.32***	1.19, 1.46
Region				
North®				
North-east	1.33***	1.13, 1.56	1.01	0.88, 1.16
East	1.19**	1.04, 1.36	0.94	0.84, 1.05
West	0.90	0.78, 1.04	1.25***	1.12, 1.40
Central	1.03	0.90, 1.17	0.93	0.83, 1.03
South	0.99	0.87, 1.13	1.43	1.29, 1.59
Constant	0.02		0.07	
-2 Log likelihood	19095.51		27439.81	

Note: *p<0.1 **p<0.05 and ***p<0.01. ® Reference category. Dependent variables: Physical Mobility: 0=mobile, 1=immobile; Hospitalization: 0=not hospitalized, 1= hospitalized.