

Health Status of Elderly in India: Evidence from a Large Survey Dataset

by

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Abstract

Population ageing is emerging as one of the most pressing economic, social and public policy challenges that India is facing today. However, few attempts have been made to analyze the determinants of elderly health. In this study, the factors affecting elderly health in India are examined, using data from a large nationally representative survey conducted in 2004 by the National Sample Survey Organization (NSSO) of India. The determinants of four interrelated but distinct measures of health --self-reported perceived health, physical disability, chronic health, and physical mobility -- are explored using regression analysis. The results show the relative importance of various determinants varies across the four dimensions of health. Large health inequalities among various social and religious groups of elderly population are documented.

Keywords: Health status, elderly, population, social groups, India

1. Introduction

Demographic transition is a relatively new phenomenon in India. Rapid spread of health care facilities post Independence in cities and semi-urban areas has made it possible to bring down maternal and neo-natal mortalities, fuelling an explosion in population growth. A result of this phenomenon is the rapidly growing number of elderly people. Most debates and discussions on the issue of population growth have focused on how to control the growth rate with little being said about dealing with existing stock of population. After witnessing several decades of fast-paced population growth only now is the world's second most populous nation coming to realize the challenges of an ageing population.

The 2001 population census estimates the proportion of elderly population (aged 60 years and above) at 7.5%. A large share of the world's aged population is currently living in the developing countries and this number is expected to grow to 70% by 2010. Given the sheer size of the country's population, India can be expected to house a good number of these people. However, the absence of a universal social security network will have implications for health care that need to be addressed now.

Despite growing recognition of population ageing in India, less attention has been devoted to analyzing the causes and sources of health status of elderly persons in India. This study aims to bridge the gap by looking at factors that are related to health of the elderly using a country-wide sample of the elderly population. Section 2 surveys the literature on the topic. A brief description of data set and methods used are given in

Section 3. Empirical results are discussed in Section 4 and Section 5 details the conclusions. This study also attempts to overcome the limitations of previous studies by modeling four objective and subjective indicators of health. Previous studies have confined themselves to modeling either subjective or objective indicators using data from 1995-96. Thus, the earlier studies fail to recognize the fact that health is a multidimensional concept. Using data from 2004, this study facilitates a comparison of relative significance of variables with studies that used data from 1995-96. The study documents inequalities in elderly health by caste, gender, region, religion, gender and economic groups in pre and post reform scenario. The role of economic independence and living arrangements are also explored.

2. Past Studies

Very few multivariate studies have been conducted on health of elderly in India. Two exceptions are recent works by Gupta and Sankar (2003) and Mini (2008). Gupta and Sankar using NSSO 52nd round data (for 1995-96) used a probit model for disability and chronic ailments separately. All the socio-economic variables in her model were significant in explaining disabilities whereas gender and location were insignificant in modeling chronic ailments. In her recent work, Mini using NSSO 60th round data used a logistic model of overall health combining ailments, physical mobility and self-assessed health condition as a single outcome variable. Mini's work using data from the southern state of Kerala revealed that for males and females as a single category, education and marital status were insignificant variables. However, religion and economic independence were significant indicators with the odds ratios in the expected direction.

For an international perspective on self rated health, Buckley et al. (2004) studied the effect of socio-economic variables like income on change in health status in the elderly population (aged 50 and above) using household survey data from Canada. The measure of health status used was self-reported by subjects. Subjects were asked to rate their health relative to others in the same age group as excellent, very good, good, fair or poor. The authors interpreted the first three categories of responses as reflecting good health and the last two as poor health.

Buckley and co-authors find a significant and negative association between age and change in health status. Good health is positively and significantly related to income for the top two income quartiles. For males higher education and marriage contribute

positively to good health. Surprisingly for females, the relationship between marriage and health is insignificant across all specifications.

One aspect of socio-economic determinants of health outcomes that has received very little attention in economics literature is the influence of religion. Although this research is not aimed at establishing the influence of religion on health, it is important to note that faith can be an influential factor in a country steeped in religion and culture. Levin (1994) surveys the literature on the link between health and religion. He found that there is an association between health and religion although the question of whether it is causal did not find a definitive answer. Levin and Schiller (1987) in a survey of published findings state that risk of disease is relatively lower in behaviorally strict religions and denominations. This is true not just of specific diseases but also of general health indicators. They further state that when ordinal indicators of religious involvement are used, there is an across the board trend towards better health and less morbidity and mortality among more religiously inclined persons. Oman and Thoresen (2002) detail the major pathways through which religion may influence health. These pathways include healthy behavior such as avoiding smoking and drinking of alcohol, social support through social networks and contact with co-religionists, enjoyment of better mental health and psychological states. Byrd (1988) conducted a provocative randomized control trial using a double blind setting detailing the therapeutic effects of prayer on coronary care outcomes.

The use of self rated health assessments has generated a fair amount of controversy with opinions which are critical of its use and those which are not. In this

context it is pertinent to mention both sets of views. Nobel laureate A.K.Sen has been a leading critic of self reported health measures. In a 2002 article, he discussed the disconnection between an individual's perception of health and actual (objective) health condition.

Sen (2002) is of the view that an individual's own assessment of health is contingent on relevant social experience and therefore socially disadvantaged people will fail to perceive and report the presence of illness or health deficits. He cites the example of two Indian states in 1990s, namely Bihar and Kerala with very divergent socio-economic and medical conditions. The later with the highest life expectancy and education levels also has the highest rate of reported morbidity. At the other end, Bihar with low life expectancy and poor medical and educational infrastructure has the lowest level of reported morbidity. Thus the argument goes that people with little educational awareness, living in disease-prone areas may be inclined to treat disease as a routine affair and are less likely to report it.

The view held by Sen is challenged by Subramanian et al. (2008), who show empirically that a very pessimistic view of self ratings might not be warranted. Using data from NSSO 60th round and other data sets, the authors test whether there is an inverse association between socio-economic status as measured by years of education and self-reported measures of health for India. The results show that people with less education are more likely to report specific morbidities and overall poor health. Rahman and Barsky (2003) found in the context of Bangladesh that self-reported health is

significantly associated with measured physical performance among adult population aged 50 and above.

The use of self reported measures has also received some support in western countries. Articles by Ferraro (1980) as well as Fillenbaum (1979) are two such examples. The later in particular finds that for the elderly community-based population, self assessments of health are a reflection of actual health status. Fillenbaum finds some differences with respect to gender. In particular, women respondents had a tendency to withstand a higher number of illnesses and problems for a given level of self reported health status when compared with their male counterparts. However, results for institutionalized subjects showed that subjective measures did not reflect their objective status. Ferraro also reported similar results.

Socioeconomic conditions are considered influential in determining health outcomes. Ramos (2007) examines the link between various dimensions of socioeconomic status and health outcomes in elderly population. She specifically looks at the case of elderly population in Brazil using survey data. Her study focuses on three socioeconomic indicators – years of schooling, type of occupation and purchasing power (measured by ownership of items like automobiles, refrigerator, telephones, etc.).

Education and purchasing power were found to be significant in explaining self-rated health after controlling for confounders but were not influential in explaining morbidity.

Living arrangements are another factor which can influence health outcomes of the elderly. Historically in India, the family has provided care to the elderly members with senior members enjoying a great deal of respect and authority in decision making.

However, with the advent of industrialization and urbanization, the joint family system has been slowly withering away as younger male members migrate to cities in search of employment. The withering of the joint family system has placed the lives of elderly members of the family in jeopardy especially in rural areas. Elderly females are the worst affected given the fact that they have married men who are older than them and because they have greater longevity.

Recent papers on this topic using data from India have modeled living arrangements both as an outcome variable and an explanatory variable and looked at the connection with the health of the elderly. Chaudhuri and Roy (2009) study how living arrangement choices are influenced by economic independence and other socioeconomic factors. They find that economic independence, age, being currently married and household per capita consumption expenditure are significant variables in explaining the decision of the elderly to live alone. They argue that economic independence is associated with the decision to live alone because privacy is viewed as a normal good.

Sen and Noon (2006) examine whether living arrangements have a bearing on the health of the elderly in India. They study how short-term morbidity as measured by three illnesses – cough, fever and diarrhea -- is influenced by living arrangements. The study found that the likelihood of getting sick is statistically associated with residence in a single member household, assets and gender. They also show that the probability of falling sick is lower for elderly members of a joint family system.

Ownership of land can influence health outcomes indirectly. Roy and Chaudhuri (2008) argue that land ownership is influential in determining health outcomes for elderly

because of purely non-altruistic motives on the part of relatives. The possibility of receiving an inheritance of land in the future may influence children and kin to provide support to elderly relatives. On the other hand, economic independence is likely to have a direct impact on the health of elderly through primary and secondary prevention in old age and during the course of life (Roy and Chaudhuri 2008).

This study departs from previous works on the subject of health of elderly on two broad counts – outcome variables and explanatory variables. Unlike works by Gupta and Sankar (2003) and Mini (2008), this study models four objective and subjective indicators of health. The four indicators not only capture disease but also status of physical mobility, a key indicator that reveals the extent of physical dependency of an elderly person for daily activities and perception of own health as two distinct outcomes.

The reasons for modeling these two outcomes are obvious because disabilities and chronic ailments do not capture all dimensions of health. To better understand this point, one needs to only look at the following definition of health adopted by UNICEF and cited by Bloom and Canning (2003) -- “A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”.

In trying to explain the complex phenomenon of health, this study combines variables used by Gupta and Sankar (2003) as well as Mini (2008) and expands on their models by incorporating additional explanatory variables. In doing, so we look at determinants of health such as economic independence and per capita household consumption expenditure. Deaton (1997) makes a compelling case for using consumption

expenditure instead of income in explaining standards of living across developing countries.

The present study also departs from the work of Gupta in terms of relevance of the data set. The 52nd round data that Gupta uses covers information for the period 1995-96. In comparing the results of this study with Gupta's work due attention must be given to the fact India embarked on a massive economic reforms program in 1991 which transformed a once backward agrarian economy into one of the fastest growing economies of the world. Therefore, the data set used here is more likely to capture the comparative influence of variables after nearly 15 years of economic reform.

3. Data and Methods

The basis of this study are data collected by the National Sample Survey Organisation (NSSO) in its 60th round survey on “Morbidity, Health Care and Conditions of Aged”, conducted between January and June 2004. NSSO, a permanent body established by the Government of India (GOI), undertook this survey primarily to study the benefits derived by various sections of the population from investments and outlays made by GOI and the private sector in for health and to get an estimate of household expenditure on health care.

Information on the subjects in the survey was obtained through interviews. Effort was made to obtain the information regarding ailments directly from the subjects themselves. Despite this, it is possible that some other member of the household might have provided the information. The overall sample is comprised of 34,831 individuals aged 60 and above spread across 28 States and 7 Union Territories. However for the analysis 56 individuals were dropped from the sample to avoid the familiar problem of outlying observations. An individual was considered an outlier if he/she reported their age as above 110 and if monthly reported household consumer expenditure was either greater than 60,000 rupees (US \$= 45 rupees) or less than or equal to two rupees.

An individual's health status was measured by way of perceived health status, physical mobility and disease condition. Perceived health status refers to both mental as well as physical aspects of well being. Thus following this criterion, a person is considered as being in good health if he feels so. Individuals were asked to choose what they thought of their state of health from the following: excellent; very good, good; fair

and poor. Physical mobility reflects the ability of aged person to move around. This facet was assessed by asking an individual to choose if he/she was confined to bed, confined to home or mobile. Finally, information about disease condition was obtained by seeking information about specific ailments.

In order to assess key determinants of an elderly individual's health, four interrelated but distinct health outcomes – disability, chronic ailments, health perception and physical mobility were regressed on various explanatory variables. The statistical analysis was performed using STATA Intercooled 9.1 version (StataCorp, College Station, Texas 77845).

4. Discussion of Results

4.1. Demographic and Socio-Economic Status of Elderly

According to the 2001 census, India had 76.62 (about 7.5%) million elderly persons.

Females comprised 50.70% of the elderly population and the share of males was 49.28%.

Three-fourths of the elderly population resides in rural India. The state of Kerala has the highest proportion of aged (10.48%) and is closely followed by Himachal Pradesh (9.01%) and Punjab (9.00%). Northeastern states of India seem to have the lowest proportion of aged with Nagaland (4.54%) followed by Arunachal Pradesh (4.55%) and Meghalaya (4.56%).

The elderly in India face many disadvantages from a socio-economic standpoint. These disadvantages are further exacerbated for elderly women. The gender bias in socio-economic conditions is likely to have an impact on health and access to health care. For example, gender will partly determine the amount and type of nutrition a person gets as well as expenditure on hospitalization and treatment. Data from the NSS 60th round reveals high levels of economic dependency among elderly. About 53.58% of all elderly males are economically independent compared with only 14.5% for females. An overwhelming majority of the support that elderly dependents receive comes from family, namely children and spouses.

As far as living arrangements are concerned, about 78% elderly males live with their spouses as against only 39% for elderly females. This sharp contrast is not surprising given that life expectancy at birth for females is higher and therefore chances

of widowhood are also higher. Nearly 59% of elderly females in this survey reported being widows versus 18.42% widowers among males.

4.2.1 Analysis of Determinants of Health and Disability:

Old age is a time when chances of developing chronic disease and disabilities are greater due to the complications of declining physical health. This has implications for the medical care system and social security net. However, this inquiry is not concerned with the financial impact of disease; rather, the focus of this study is limited to the investigation of socio-economic determinants of the health status of elderly.

As stated in the introduction section, subjects were asked three sets of probing questions about their health. Two of these questions, namely perception about own health and status of physical mobility were subjective in nature. The third question about specific ailments was more objective in nature.

4.2.2 Basic Statistics:

Table 1 gives the descriptive statistics associated with each variable used in the analysis. Reported are the mean, standard deviation, minimum and maximum values for each outcome and explanatory variable. It is evident that only a small percentage of persons in the data set suffer from either disability or chronic ailments.

4.2.3 Overall Health:

Table 2 shows categories of perception of own health by age and gender. As age increases perception about own health status worsens. Also a greater percentage of females as compared to males report poor health irrespective of age category.

4.2.4 Physical Mobility:

Table 3 reports physical mobility data by age and gender. Although one might intuitively argue that people who are completely immobile should report poor overall health, this need not always be true. A comparison of the two tables reveals that mobility and health perception in fact vary.

4.2.5 Disease Status:

To examine the impact of ageing an objective health criteria, two categories of diseases, namely disabilities and chronic ailments were considered. Based on the literature and subject to limitation of the data set, the following five types of ailments were classified as disabilities – locomotor impairment, visual including blindness (excluding cataract), speech problems, hearing loss and diseases of mouth, teeth, and gum. Similarly, chronic ailments included heart disease, hypertension, kidney, urinary system diseases, diabetes mellitus as well as cancer and other tumors.

Table 5 reports the absolute and relative frequency of both disabilities and chronic ailments. The percentages reported for corresponding shares for each age category by gender. For disabilities, an increasing trend in the percentages is shown for both male and female with the exception of diseases of mouth, teeth, and gum. The increasing trend is as anticipated as one would expect a greater proportion of very elderly to suffer from more

disabilities. As far as chronic illnesses are concerned an increasing trend with respect to age is not seen in many cases.

4.2.6 Caste Dimension:

Turning now to the issue of how caste is correlated with health. The caste system that evolved centuries ago divided the Hindu society into five mutually exclusive groups called castes. The caste system defined all aspects of a person's existence. According to Deshpande (2000), the organization of the caste system corresponded to a very rudimentary economy with the higher echelons of the system cornering the better paid and more respectable jobs while leaving the menial jobs to the lower castes.

Following India's independence from Britain in 1947, the government set out to improve social justice to these underprivileged groups by way of affirmative action through job reservation. Deshpande's work documents the existence of caste related disparities in consumption expenditure for the state of Kerala, nearly 50 years after the government embarked on an affirmative action plan. Therefore, it is worth investigating if there are caste based disparities in health outcomes.

Tables 7, 8 and 9 provide data on the health status of the lower castes namely the Scheduled Castes (SC) and Scheduled Tribes (ST) vis-à-vis the other castes. Not surprisingly the SC males and females report the highest proportion of people in poor health and the lowest in the excellent category. However both ST males and females report the lowest proportions in the poor category and highest in the excellent category of all social group formations. As far as physical mobility is concerned, both SC as well as ST males and females seem to fare better than their other counterparts. ST males and

females report the lowest proportions for chronic diseases as compared with the other three groups. This may not come as a surprise given the fact that most of these diseases are associated with modern lifestyles and diet. For disabilities, SC and ST individuals report percentages that are generally less favorable than others.

4.2.7 Religious Influences:

As noted in the literature survey, religion seems to have a connection with health and, therefore, it is interesting to see how this reveals itself in the data. With regard to own health perception, followers of Islam report the worst outcomes for poor health while Christians report the best outcomes out of the three major religious groups. Conversely, the Christian group reports the highest number of people in the excellent category whereas Islam has the lowest.

As far as physical mobility is concerned once again Islam is the worst category with the highest proportion of people confined to bed while Christians seem to have the best outcome with lowest share in the category. The patterns that are seen for subjective indicators of health do not necessarily hold for disabilities. Christians, on the other hand, are not necessarily the healthiest. Again for chronic ailments there is no clear-cut pattern with the Islamic group doing moderately well. However, Christian females seem to report the highest proportion of diseased among the three groups for most chronic ailments.

4.2.8 Income:

The connection between income and health is revealed in table 14. The five richest and five poorest states in India are contrasted with respect to self assessment of health. It is evident that health perception does not follow a unique pattern with respect to per capita

income. In other words, living in a more affluent state does not necessarily mean better health and therefore one has to look for other factors to explain the trends.

4.2.9 Regression Analysis:

The analysis focuses primarily on demand side variables in the absence of supply side information about an individual's health. As discussed above, age and gender are important variables that affect illness. Education, social status and location are also variables of interest in explaining health outcomes. Furthermore, economic independence and monthly per capita expenditure are important predictors of health. Using monthly per capita expenditure instead of income helps to overcome the familiar problem of endogeneity with the outcome variable.

Subjects in the survey were asked to report the status of their living arrangement. Individuals were asked to report if they lived alone, with their spouse, with spouse and children, or others. The second and third categories are combined into a dummy variable called living with spouse, i.e. living with spouse=1 if living with spouse alone or living with spouse and children and 0 otherwise.

To examine the influence of religion, two dummy variables are included -- one for Islam and the other for Christian. Three dummies for household expenditure -- very low expenditure, low expenditure, and medium expenditure households -- based on levels of monthly per capita income. Finally to capture state-level effects, state dummy variables are included.

There are four models for each outcome. The first model excludes dummies for expenditure categories and states. The second model includes expenditure dummies but

excludes per capita expenditure. The third variant includes state dummies and uses the per capita expenditure variable. And finally the fourth model excludes the per capita expenditure variable but uses state dummies and expenditure dummies.

The results are revealing. For disabilities, age surprisingly does not make a statistically significant difference in any of the four models. This is in contrast to the findings of Gupta and Sankar (2003). Gender is not a significant variable in any of the specifications. The significantly higher probability of disease among males disappears when state level effects are introduced. Being literate has a statistically negative influence on ill health. Two of the key variables investigated namely economic independence and living with spouse, have a negative influence on the probability of disability. Membership in lower social groups has an adverse influence on good health. The influence of the Islam variable is insignificant. Residence has a negative and statistically significant influence on health. All the expenditure dummies are significant and their signs reflect the positive influence of expenditure on health.

Regarding chronic ailments, not surprisingly, age and gender are significant variables and their influence on ill health is as expected across model specifications. Per capita expenditure and literacy though significant, are counter influential. Economic independence is significant only in the presence of state dummies and increases the probability of chronic ailments. Living with spouse is counter productive for chronic disease as these individuals have a higher probability of disease. Membership in a socially disadvantaged caste however is beneficial as the associated probability of

chronic ailments is lower. Residence in a rural locality is advantageous for health while religion is not.

As far as perceived health status is concerned, age is influential in the expected direction. Gender does not exercise a significant influence. Individuals who are economically independent exercise a significant influence on health perception in the expected direction whereas living with spouse and social grouping are not significant in explaining own health perception. The Islam variable is influential and with individuals reporting an increased probability of being in poor health. Expenditure categories and place of residence are also influential variables in the model.

Finally, age and male gender exert a significant influence on mobility. However, males seem to report lower probability of being mobile. Literacy does not make a difference and neither does social group. Expenditure categories, economic independence and living with spouse are significant. Religious variables exert a mixed influence with Islam variable being influential while being the Christian variable is not.

In table 21, the results of Poisson regression for number of disabilities is estimated. The estimated coefficients have been transformed into incidence rate ratios for easier interpretation. A comparison of this model with the probit model for disability reveals a great deal of similarity with the sole exception of age. The age variable becomes significant in the count model. This shows that while age is not significantly associated with having disabilities, age matters as far as number of disabilities are concerned. The Islam and landless variables remain insignificant throughout.

5. Conclusions and Policy Implications:

In summary, this study documents the relative importance of various socio-economic factors in explaining four different measures of health of the elderly population in India. The study finds social group, living arrangement, per capita expenditure, literacy and economic independence are significant variables in explaining disabilities. For chronic ailments, barring economic independence, almost all the other variables are significant with signs in opposite direction compared with the disability outcome. This is not surprising given the nature of disease outcomes. The occurrence of chronic ailments has much to do with lifestyle. The influence of lifestyle is likely to be picked up by variables such as religion, caste and place of residence. In explaining self reported health, gender and social group are mostly insignificant determinants across specifications. Finally for physical mobility, age, gender, economic independence, living arrangement and Islam are significant determinants.

Thus, from the perspective of a developing country having limited resources, a targeted, multi-pronged government plan has the potential to improve the health of elderly measured by the four indicators specified above. Some states have already initiated legal and financial measures aimed at easing the financial burden of the elderly by requiring that children financially support their aged parents and provisioning for state funded old age pensions. However, socioeconomic factors can partly explain the complex phenomenon of health, improved survey methods are needed to capture information on environmental factors, biological variables and dietary intake.

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Appendix: Description of Variable Codes

Variable Name	Description	Code
Physical Mobility	Categories of mobility status	1 if confined to bed, 2 if confined to home, 3 if mobile
Health Perception	Own perception of current health	1 if excellent/very good, 2 if good/fair, 3 if poor
Disability	Dummy variable if suffering from disability	1 if having locomotor, visual, speech, hearing, disease of mouth/teeth/gum; 0 otherwise
Chronic	Dummy variable if suffering from chronic disease	1 for heart disease, hypertension, kidney/urinary, diabetes, cancer/tumors; 0 otherwise
Disabilities	Count variable for number of disabilities	Maximum of five disabilities, minimum of zero
Age	Ages of elderly people	continuous variable
Rural	Dummy if residing in rural area	1 if rural, 0 in urban area
SC/ST	Dummy if Scheduled Caste or Scheduled Tribe	1 if SC/ST, 0 otherwise
Male	Dummy for gender	1 if male, 0 if female
Islam	Dummy for Islam religion	1 if Islam, 0 otherwise
Christian	Dummy for Christian religion	1 if Christian, 0 otherwise
Economic Independence	State of individual's economic independence	1 if economically independent, 0 if not
Literate	Individual's literacy status	1 if literate, 0 if illiterate
Per Capita Monthly Expenditure	Per capita expenditure in last 30 days (in thousand rupees)	continuous variable
Living	Whether living with spouse	1 if living with spouse, 0 otherwise
Landless	Whether owning less than .005 hectares of land or less	1 if less than .005 hectares, 0 otherwise
Very Low Expenditure	Dummy for very low monthly per capita expenditure individuals	1 if per capita expenditure <408.3333, 0 otherwise
Low Expenditure	Dummy for low monthly per capita expenditure individuals	1 if 408.3333 < per capita expenditure < 571.4286, 0 otherwise
Medium Expenditure	Dummy for medium monthly per capita expenditure individuals	1 if 571.4286 < per capita expenditure < 857.1429, 0 otherwise

Table 1: Basic Statistics of Dependent and Explanatory Variables

Variables	Mean	Minimum	Maximum	Standard Deviation
Dependent				
Health Perception	2.19	1	3	.52
Disability	.17	0	1	.37
Chronic	.28	0	1	.45
Physical Mobility	2.89	1	3	.38
Disabilities	.19	0	5	.47
Explanatory				
Age	67.59	60	110	6.97
Male	.51	0	1	.50
Literate	.39	0	1	.49
Per Capita Monthly Expenditure (Rupees)	737.06	12.5	20900	605.60
Landless	.18	0	1	.39
Economic Independence	.35	0	1	.48
Living with Spouse	.59	0	1	.49
SC/ST	.25	0	1	.43
Islam	.11	0	1	.31
Christian	.05	0	1	.22
Very Low Expenditure	.25	0	1	.43
Low Expenditure	.25	0	1	.43
Medium Expenditure	.25	0	1	.43
Rural	.64	0	1	.48
Andhra Pradesh	.063	0	1	.243
Arunachal Pradesh	.009	0	1	.095
Assam	.028	0	1	.166
Chhattisgarh	.019	0	1	.135
Delhi	.013	0	1	.113
Goa	.004	0	1	.060
Gujarat	.039	0	1	.192
Haryana	.022	0	1	.146
Himachal Pradesh	.023	0	1	.149
Jammu & Kashmir	.017	0	1	.130
Jharkand	.025	0	1	.156
Karnataka	.044	0	1	.205
Kerala	.051	0	1	.220
Madhya Pradesh	.050	0	1	.218
Maharashtra	.078	0	1	.268
Manipur	.017	0	1	.131
Meghalaya	.008	0	1	.088
Mizoram	.011	0	1	.104
Nagaland	.003	0	1	.056
Orissa	.037	0	1	.188
Punjab	.024	0	1	.152
Rajasthan	.048	0	1	.214
Sikkim	.007	0	1	.082
Tamil Nadu	.068	0	1	.251
Tripura	.012	0	1	.107
Uttaranchal	.008	0	1	.091
Uttar Pradesh	.135	0	1	.342
West Bengal	.069	0	1	.253

Note: N=34,775

Table2: Age Profile of Individuals (Row %)

Age	Male	Female	Total
60-69	11,369 (50.48)	11,155 (49.52)	22,524 (100.00)
70-79	4,817 (52.14)	4,421 (47.86)	9,238 (100.00)
80+	1,539 (51.08)	1,474 (48.92)	3,013 (100.00)
Total	17,725 (50.97)	17,050 (49.03)	34,775 (100.00)

Table 3: Distribution of Own Health Perception by Age (Column %)

Perception	60-69			70-79			80+		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Excellent/ Very Good	971 (8.98)	517 (4.88)	1,488 (6.95)	172 (3.71)	95 (2.24)	267 (3.01)	44 (3.00)	26 (1.85)	70 (2.44)
Good/ Fair	8,048 (74.43)	7,895 (74.45)	15,943 (74.44)	3,034 (65.53)	2,697 (63.61)	5,731 (64.61)	757 (51.67)	693 (49.54)	1,450 (50.63)
Poor	1,794 (16.59)	2,192 (20.67)	3,986 (18.61)	1,424 (30.76)	1,448 (34.15)	2,872 (32.38)	664 (45.32)	680 (48.61)	1,344 (46.93)
Total	10,813 (100.00)	10,604 (100.00)	21,417 (100.00)	4,630 (100.00)	4,240 (100.00)	8,870 (100.00)	1,465 (100.00)	1,399 (100.00)	2,864 (100.00)

Table 4: Distribution of State of Physical Mobility by Age (Column %)

Mobility	60-69			70-79			80+		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Confined to bed	120 (1.08)	111 (1.02)	231 (1.05)	120 (2.53)	107 (2.46)	227 (2.50)	97 (6.48)	111 (7.78)	208 (7.12)
Confined to home	404 (3.64)	495 (4.55)	899 (4.09)	405 (8.54)	582 (13.39)	987 (10.86)	288 (19.24)	378 (26.51)	666 (22.78)
Mobile	10,589 (95.28)	10,278 (94.43)	20,867 (94.86)	4,219 (88.93)	3,657 (84.15)	7,876 (86.64)	1,112 (74.28)	937 (65.71)	2,049 (70.10)
Total	11,113 (100.00)	10,884 (100.00)	21,997 (100.00)	4,744 (100.00)	4,346 (100.00)	9,090 (100.00)	1,497 (100.00)	1,426 (100.00)	2,923 (100.00)

Table 5: Age Profile of Ailments

	60-69			70-79			80+		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Disability									
Visual	166 (1.46)	234 (2.1)	400 (1.78)	137 (2.84)	176 (3.98)	313 (3.39)	78 (5.07)	103 (6.99)	181 (6.00)
Hearing	141 (1.24)	166 (1.49)	307 (1.36)	142 (2.95)	157 (3.55)	299 (3.24)	97 (6.30)	109 (7.40)	206 (6.84)
Speech	14 (0.12)	10 (0.09)	24 (0.11)	14 (0.29)	12 (0.27)	26 (0.28)	7 (0.46)	6 (0.41)	13 (0.43)
Locomotor	202 (1.78)	163 (1.46)	365 (1.62)	144 (2.99)	145 (3.28)	289 (3.13)	87 (5.65)	105 (7.12)	192 (6.37)
Gums, Teeth, Mouth	33 (0.29)	33 (0.30)	66 (0.29)	11 (0.23)	9 (0.20)	20 (0.22)	4 (0.26)	8 (0.54)	12 (0.40)
Chronic									
Heart Disease	302 (2.66)	226 (2.03)	528 (2.34)	208 (4.32)	125 (2.83)	333 (3.6)	62 (4.03)	47 (3.19)	109 (3.62)
Hypertension	480 (4.22)	594 (5.33)	1,074 (4.77)	273 (5.67)	323 (7.31)	596 (6.45)	88 (5.72)	104 (7.06)	192 (6.37)
Kidney/Urinary	78 (0.69)	45 (0.40)	123 (0.55)	72 (1.50)	22 (0.50)	94 (1.02)	33 (2.14)	6 (0.41)	39 (1.29)
Diabetes	429 (3.77)	376 (3.37)	805 (3.57)	204 (4.24)	168 (3.80)	372 (4.03)	48 (3.12)	38 (2.58)	86 (2.85)
Cancer and Tumors	33 (0.29)	55 (0.49)	88 (0.39)	17 (0.35)	22 (0.50)	39 (0.42)	6 (0.39)	8 (0.54)	14 (0.47)

Table 6: Profile of Social Groups (Column %)

Social Group	Male	Female	Total
SC	2,696 (15.22)	2,569 (15.07)	5,265 (15.14)
ST	1,765 (9.96)	1,471 (8.63)	3,236 (9.31)
OBC	6,482 (36.58)	6,451 (37.85)	12,933 (37.20)
Others	6,777 (38.25)	6,555 (38.46)	13,332 (38.35)
Total	17720 (100.00)	17046 (100.00)	34,766 (100.00)

Table 7: Distribution of Own Health Perception by Social Group (Column %)

Perception	SC		ST		OBC		Others	
	Male	Female	Male	Female	Male	Female	Male	Female
Excellent/ Very Good	131 (5.02)	89 (3.60)	146 (9.56)	71 (5.52)	406 (6.49)	198 (3.19)	504 (7.74)	280 (4.47)
Good/ Fair	1,790 (68.58)	1,646 (66.67)	1,097 (71.84)	957 (74.42)	4,369 (69.88)	4,329 (69.65)	4,579 (70.28)	4,350 (69.38)
Poor	689 (26.40)	734 (29.73)	284 (18.60)	258 (20.06)	1,477 (23.62)	1,688 (27.16)	1,432 (21.98)	1,640 (26.16)
Total	2,610 (100.00)	2,469 (100.00)	1,527 (100.00)	1,286 (100.00)	6,252 (100.0)	6,215 (100.00)	6,515 (100.00)	6,270 (100.00)

Table 8: Distribution of Physical Mobility by Social Group (Column %)

Mobility	SC		ST		OBC		Others	
	Male	Female	Male	Female	Male	Female	Male	Female
Confined to bed	42 (1.58)	43 (1.70)	22 (1.33)	20 (1.46)	124 (1.94)	113 (1.78)	149 (2.24)	153 (2.38)
Confined to home	162 (6.11)	214 (8.45)	103 (6.24)	124 (9.08)	390 (6.11)	537 (8.47)	442 (6.64)	580 (9.04)
Mobile	2,449 (92.31)	2,275 (89.85)	1,525 (92.42)	1,222 (89.46)	5,870 (91.95)	5,688 (89.74)	6,071 (91.13)	5,684 (88.58)
Total	2,653 (100.00)	2,532 (100.00)	1,650 (100.00)	1,366 (100.00)	6,384 (100.00)	6,338 (100.00)	6,662 (100.00)	6,417 (100.00)

Table 9: Distribution of Ailments by Social Group

	SC		ST		OBC		Others		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Disability									
Visual	62 (2.30)	88 (3.43)	40 (2.27)	49 (3.33)	156 (2.41)	215 (3.33)	123 (1.82)	161 (2.46)	894
Hearing	50 (1.86)	60 (2.34)	68 (3.85)	74 (5.03)	137 (2.11)	166 (2.57)	125 (1.85)	132 (2.01)	812
Speech	6 (0.22)	3 (0.12)	8 (0.45)	4 (0.27)	10 (0.15)	12 (0.19)	11 (0.16)	9 (0.14)	63
Locomotor	79 (2.93)	60 (2.34)	41 (2.32)	38 (2.58)	150 (2.31)	165 (2.56)	163 (2.41)	150 (2.29)	846
Gums, Teeth, Mouth	9 (0.33)	8 (0.31)	10 (0.57)	4 (0.27)	17 (0.26)	16 (0.25)	12 (0.18)	22 (0.34)	98
Chronic									
Heart Disease	50 (1.86)	28 (1.09)	19 (1.08)	17 (1.16)	161 (2.48)	118 (1.83)	342 (5.05)	235 (3.59)	970
Hypertension	72 (2.67)	108 (4.20)	31 (1.76)	25 (1.70)	294 (4.54)	348 (5.40)	444 (6.55)	540 (8.24)	1,862
Kidney/ Urinary	28 (1.04)	8 (0.31)	6 (0.34)	3 (0.20)	65 (1.00)	25 (0.39)	84 (1.24)	37 (0.57)	256
Diabetes	43 (1.60)	46 (1.79)	19 (1.08)	11 (0.75)	251 (3.87)	173 (2.68)	368 (5.43)	352 (5.37)	1,263
Cancer and Tumors	10 (0.37)	12 (0.47)	3 (0.17)	2 (0.14)	16 (0.25)	35 (0.54)	27 (0.40)	36 (0.55)	141

Table 10: Profile of Population by Religion (Column %)

Religion	Male	Female	Total
Hindu	14,142 (79.80)	13,775 (80.80)	27,917 (80.29)
Islam	1,889 (10.66)	1,766 (10.36)	3,655 (10.51)
Christian	932 (5.26)	828 (4.86)	1,760 (5.06)
Others	760 (4.29)	680 (3.99)	1,440 (4.14)
Total	17723 (100.00)	17,049 (100.00)	34,772 (100.00)

Table 11: Distribution of Own Health Perception by Religion (Column %)

Perception	Hindu		Islam		Christian		Others	
	Male	Female	Male	Female	Male	Female	Male	Female
Excellent/ Very Good	930 (6.81)	518 (3.91)	100 (5.61)	51 (3.07)	82 (10.70)	33 (4.63)	75 (10.64)	36 (5.67)
Good/ Fair	9,603 (70.34)	9,290 (70.18)	1,184 (66.37)	1,045 (62.99)	554 (72.32)	491 (68.96)	497 (70.50)	459 (72.28)
Poor	3,119 (22.85)	3,429 (25.90)	500 (28.03)	563 (33.94)	130 (16.97)	188 (26.40)	133 (18.87)	140 (22.05)
Total	13,652 (100.00)	13,237 (100.00)	1,784 (100.00)	1,659 (100.00)	766 (100.00)	712 (100.00)	705 (100.00)	635 (100.00)

Table 12: Distribution of Physical Mobility by Religion (Column %)

Mobility	Hindu		Islam		Christian		Others	
	Male	Female	Male	Female	Male	Female	Male	Female
Confined to bed	277 (1.99)	258 (1.91)	37 (2.00)	46 (2.66)	10 (1.18)	11 (1.44)	13 (1.78)	14 (2.12)
Confined to home	857 (6.16)	1,141 (8.45)	137 (7.41)	173 (10.02)	63 (7.40)	80 (10.50)	40 (5.47)	61 (9.26)
Mobile	12,787 (91.85)	12,110 (89.64)	1,675 (90.59)	1,508 (87.32)	778 (91.42)	671 (88.06)	678 (92.75)	584 (88.62)
Total	13,921 (100.00)	13,509 (100.00)	1,849 (100.00)	1,727 (100.00)	851 (100.00)	762 (100.00)	731 (100.00)	659 (100.00)

Table 13: Distribution of Ailments by Religion

	Hindu		Islam		Christian		Others		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
Disability									
Visual	317 (2.24)	422 (3.06)	34 (1.80)	60 (3.40)	16 (1.72)	17 (2.05)	14 (1.84)	14 (2.06)	894
Hearing	273 (1.93)	337 (2.45)	42 (2.22)	44 (2.49)	46 (4.94)	36 (4.35)	19 (2.50)	15 (2.21)	812
Speech	27 (0.19)	20 (0.15)	3 (0.16)	6 (0.34)	3 (0.32)	2 (0.24)	2 (0.26)	0 (0)	63
Locomotor	340 (2.40)	336 (2.44)	56 (2.97)	48 (2.72)	19 (2.04)	14 (1.69)	18 (2.37)	15 (2.21)	846
Gums, Teeth, Mouth	37 (0.26)	40 (0.29)	3 (0.16)	5 (0.28)	7 (0.75)	4 (0.48)	1 (0.13)	1 (0.15)	98
Chronic									
Heart Disease	457 (3.23)	300 (2.18)	69 (3.65)	52 (2.95)	20 (2.15)	27 (3.26)	26 (3.42)	19 (2.79)	970
Hypertension	629 (4.45)	769 (5.58)	119 (6.30)	120 (6.80)	47 (5.04)	80 (9.66)	46 (6.05)	52 (7.65)	1,862
Kidney/ Urinary	154 (1.09)	58 (0.42)	12 (0.64)	9 (0.51)	7 (0.75)	3 (0.36)	10 (1.32)	3 (0.44)	256
Diabetes	527 (3.73)	453 (3.29)	80 (4.24)	58 (3.28)	46 (4.94)	50 (6.04)	28 (3.68)	21 (3.09)	1,263
Cancer and Tumors	44 (0.31)	72 (0.52)	8 (0.42)	8 (0.45)	3 (0.32)	4 (0.48)	1 (0.13)	1 (0.15)	141

Table 14: Income and Health in Five Poorest & Five Richest States of India in 2004

State	Per Capita Income (Rupees), 2001-02	Health		
Poorest		Excellent/ Very Good (%)	Good/ Fair (%)	Poor (%)
Bihar	3,342	6.19	65.35	28.47
Uttar Pradesh	5,603	4.70	66.48	28.82
Orissa	5,802	4.05	64.99	30.96
Assam	6,066	1.90	71.24	26.87
Jharkand	6,587	6.63	66.75	26.63
Richest				
Haryana	14,181	7.04	71.31	21.65
Maharashtra	14,642	6.70	72.62	20.68
Punjab	15,195	6.51	72.60	20.88
Delhi	26,306	7.52	77.45	15.03
Goa	27,603	10.57	61.79	27.64

Table 15: Determinants of Physical Disability of the Elderly Population in India

Variables	1	2	3	4
Intercept	-1.99 (.81)*	-2.30 (.810)*	-2.36 (.824)*	-2.62 (.826)*
Age	.009 (.022)	.011 (.022)	.019 (.022)	.021 (.022)
(Age)²	.0001 (.0002)	.0001 (.0001)	.00004(.0002)	.00004 (.0002)
Male	.061 (.031)**	.052 (.032)**	.042 (.032)	.032 (.032)
Literate	-.260 (.032)*	-.243 (.032)*	-.224 (.034)*	-.204 (.034)*
Per Capita Expenditure	-.113 (.266)*		-.074 (.027)*	
Landless	.048 (.035)	.042 (.035)	.042 (.037)	.037 (.037)
Economic Independence	-.117 (.033)*	-.111 (.033)*	-.135 (.034)*	-.126 (.034)*
Living with spouse	-.086 (.030)*	-.085 (.030)*	-.080 (.030)*	-.080 (.030)*
SC/ST	.138 (.032)*	.121 (.032)*	.091 (.034)*	.075 (.034)*
Islam	-.045 (.042)	-.051 (.042)	-.023 (.043)	-.031 (.043)
Christian	.176 (.060)*	.209 (.060)*	.054 (.078)	.067 (.078)
Rural	.130 (.032)*	.087 (.033)*	.153 (.033)*	.113 (.034)*
Very Low Expenditure		.313 (.043)*		.248 (.046)*
Low Expenditure		.187 (.042)*		.178 (.043)*
Medium Expenditure		.141 (.039)*		.134 (.041)*
State Dummies	NO	NO	YES	YES
Log Likelyhood	-6011.62	-5994.79	-5790.51	-5779.82
No of Observations	13948	13948	13948	13948

Note: *Significant at 5% level of significance

Note: **Significant at 10% level of significance

Values in brackets denote standard errors

Table 16: Determinants of Chronic Illness of the Elderly Population in India

Variables	1	2	3	4
Intercept	-3.19 (.840)*	-2.55 (.844)*	-2.89 (.862)*	-2.23 (.865)*
Age	.073 (.023)*	.069 (.023)*	.062 (.024)*	.058 (.024)*
(Age)²	-.0005 (.0002)*	-.0005 (.0002)*	-.0004 (.0002)*	-.0004 (.0002)*
Male	-.092 (.030)*	-.788 (.030)*	-.070 (.030)*	-.055 (.031)**
Literate	.387 (.028)*	.364 (.029)*	.345 (.030)*	.317 (.030)*
Per Capita Expenditure	.273 (.020)*		.259 (.021)*	
Landless	-.057 (.031)**	-.049 (.032)	-.079 (.033)*	-.075 (.033)*
Economic Independence	.035 (.029)	.028 (.029)	.071 (.030)*	.061 (.030)*
Living with spouse	.055 (.028)*	.055 (.028)*	.057 (.028)*	.060 (.029)*
SC/ST	-.260 (.033)*	-.234 (.033)*	-.198 (.034)*	-.165 (.035)*
Islam	.058 (.037)	.078 (.037)*	.089 (.038)*	.109 (.039)*
Christian	.188 (.055)*	.141 (.055)*	.178 (.065)*	.166 (.065)*
Rural	-.444 (.027)*	-.375 (.028)*	-.448 (.028)*	-.378 (.029)*
Very Low Expenditure		-.651 (.041)*		-.642 (.043)*
Low Expenditure		-.455 (.036)*		-.451 (.038)*
Medium Expenditure		-.264 (.032)*		-.266 (.033)*
State Dummies	NO	NO	YES	YES
Log Likelyhood	-7382.3	-7333.6	-7131.72	-7088.34
No of Observations	13948	13,948	13,948	13,948

Note:*Significant at 5% level of significance

Note:**Significant at 10% level of significance

Values in brackets denote standard errors

Table 17: Determinants of Perceived Health Status of Elderly Population in India

Variable	1	2	3	4
Age	.129 (.013)*	.129 (.013)*	.134 (.014)*	.134 (.014)*
(Age)²	-.0006 (.00009)*	-.0006 (.00009)*	-.0007 (.00009)*	-.0007 (.00009)*
Male	.013 (.017)	.004 (.017)	.026 (.017)	.019 (.017)
Literate	-.086 (.017)*	-.063 (.017)*	-.131 (.017)*	-.113 (.017)*
Per Capita Expenditure	-.056 (.012)*		-.041 (.013)*	
Landless	.038 (.018)*	.037 (.018)*	.105 (.019)*	.103 (.019)*
Economic Independence	-.41 (.017)*	-.41 (.016)*	-.427 (.017)*	-.421 (.017)*
Living with spouse	-.030 (.016)**	-.03 (.016)**	-.020 (.016)	-.022 (.016)
SC/ST	.023 (.017)	.007 (.017)	.032 (.018)**	.019 (.018)
Islam	.188 (.023)*	.181 (.023)*	.112 (.024)*	.104 (.024)*
Christian	-.089 (.034)*	-.067 (.034)*	.021 (.041)	.025 (.041)
Rural	.132 (.017)*	.091 (.017)*	.100 (.017)*	.068 (.017)*
Very Low Expenditure		.226 (.023)*		.175 (.024)*
Low Expenditure		.137 (.022)*		.112 (.022)*
Medium Expenditure		.075 (.020)*		.066 (.021)*
State Dummies	NO	NO	YES	YES
Cut off1	3.93	4.08	4.002	4.11
Cut off2	6.36	6.52	6.48	6.59
Log Likelyhood	-23406.76	-23364.67	-23021.58	-22999.12
No of Observations	32944	32944	32944	32944

Note:*Significant at 5% level of significance

Note:**Significant at 10% level of significance

Values in brackets denote standard errors

Table 18: Determinants of Physical Mobility of the Elderly Population in India

Variable	1	2	3	4
Age	-.077 (.016)*	-.076 (.016)*	-.081 (.016)*	-.080 (.016)*
(Age)²	.0002 (.0001)*	.0002 (.0001)**	.0002 (.0001)*	.0002 (.0001)*
Male	-.061 (.024)*	-.056 (.024)*	-.066 (.024)*	-.061 (.024)*
Literate	.028 (.025)	.015 (.025)	.044 (.025)**	.032 (.026)
Per Capita Expenditure	-.069 (.017)*		-.074 (.017)*	
Landless	-.042 (.027)	-.042 (.027)	-.072 (.028)*	-.072 (.028)*
Economic Independence	.567 (.028)*	.559 (.028)*	.574 (.028)*	.566 (.028)*
Living with spouse	.091 (.022)*	.090 (.022)*	.085 (.023)*	.085 (.023)*
SC/ST	-.009 (.025)	-.0001 (.025)	.017 (.026)	.025 (.026)
Islam	-.098 (.032)*	-.092 (.031)*	-.075 (.033)*	-.069 (.033)*
Christian	-.029 (.047)	-.040 (.047)	.040 (.058)	.031 (.058)
Rural	-.046 (.024)**	-.027 (.025)	-.042 (.024)**	-.026 (.025)
Very Low Expenditure		.024 (.033)		.036 (.035)
Low Expenditure		.042 (.032)		.054 (.032)**
Medium Expenditure		.060 (.030)*		.066 (.030)*
State Dummies	NO	NO	YES	YES
Cut off1	-6.36 (.60)	-6.24 (.60)	-6.56	-6.41
Cut off2	-5.53 (.60)	-5.41 (.60)	-5.72	-5.58
Log Likelyhood	-11036.49	-11042.4	-10978.14	-10984.73
No of Observations	33850	33850	33850	33850

Note:*Significant at 5% level of significance

Note:**Significant at 10% level of significance

Values in brackets denote standard errors

Table 19: Marginal Effects for Perceived Health Status of Elderly Population

Variable	P(Excellent Health)	P(Good Health)	P(Poor Health)
Age	-.012 (.001)*	-.029 (.003)*	.040 (.004)*
(Age)²	.00006 (.00001)*	.0001 (.00002)*	-.0002 (.00003)*
Male	-.002 (.002)	-.004 (.004)	.006 (.005)
Literate	.010 (.002)*	.024 (.004)*	-.034 (.005)*
Landless	-.009 (.002)*	-.023 (.005)*	.032 (.006)*
Economic Independence	.042 (.002)*	.079 (.003)*	-.121 (.005)*
Living with spouse	.002 (.001)	.005 (.003)	-.007 (.005)
SC/ST	-.002 (.002)	-.004 (.004)	.006 (.005)
Islam	-.009 (.002)*	-.024 (.006)*	.032 (.008)*
Christian	-.002 (.004)	-.006 (.009)	.008 (.013)
Rural	-.006 (.002)*	-.014 (.004)*	.020 (.005)*
Very Low Expenditure	-.014 (.002)*	-.040 (.006)*	.055 (.008)*
Low Expenditure	-.009 (.002)*	-.025 (.005)*	.034 (.007)*
Medium Expenditure	-.006 (.002)*	-.015 (.005)*	.020 (.006)*
State Dummies	Yes	Yes	Yes

Note:*Significant at 5% level of significance

Note:**Significant at 10% level of significance

Values in brackets denote standard errors

Table 20: Marginal Effects for Physical Mobility of Elderly Population

Variable	P(Confined to Bed)	P(Confined to Home)	P(Mobile)
Age	.002 (.0005)*	.009 (.002)*	-.011 (.002)*
(Age)²	-6.67e-06 (.000)*	-.00003 (.0001)*	.00003 (.00001)*
Male	.002 (.0007)*	.007 (.003)*	-.008 (.003)*
Literate	-.0009 (.0007)	-.003 (.003)	.004 (.004)
Landless	.002 (.0009)*	.008 (.003)*	-.010 (.004)*
Economic Independence	-.014 (.0008)*	-.055 (.002)*	.070 (.003)*
Living with spouse	-.003 (.0007)*	-.009 (.003)*	.012 (.003)*
SC/ST	-.0007 (.0007)	-.003 (.003)	.003 (.004)
Islam	.002 (.001)*	.008 (.004)*	-.010 (.005)*
Christian	-.0009 (.002)	-.003 (.006)	.004 (.008)
Rural	.0007 (.0007)	.003 (.003)	-.004 (.003)
Very Low Expenditure	-.001 ()	-.004 (.004)	.005 (.005)
Low Expenditure	-.002 (.0009)**	-.006 (.003)**	.007 (.004)**
Medium Expenditure	-.002 (.0008)*	-.007 (.003)*	.009 (.004)*
State Dummies	Yes	Yes	Yes

Note:*Significant at 5% level of significance

Note:**Significant at 10% level of significance

Values in brackets denote standard errors

Table 21: Poisson Regression of Disabilities in the Elderly Population in India

Variable	1	2	3	4
Age	1.06 (.029)*	1.06 (.029)*	1.08 (.030)*	1.08 (.030)*
(Age) ²	.999 (.0001)	.999 (.0001)	.999 (.0001)	.999 (.0002)
Male	1.09 (.051)**	1.09 (.050)**	1.05 (.049)	1.04 (.048)
Literate	.655 (.033)*	.66 (.033)*	.712 (.037)*	.725 (.038)*
Per Capita Expenditure	.786 (.040)*		.851 (.042)*	
Landless	1.05 (.055)	1.04 (.055)	1.04 (.057)	1.04 (.057)
Economic Independence	.783 (.042)*	.788 (.042)*	.769 (.041)*	.776 (.042)*
Living with spouse	.858 (.038)*	.857 (.038)*	.863 (.038)*	.860 (.038)*
SC/ST	1.22 (.056)*	1.20 (.055)*	1.12 (.054)*	1.10 (.053)*
Islam	.957 (.060)	.954 (.060)	1.00 (.065)	.995 (.064)
Christian	1.38 (.114)*	.954 (.119)*	1.03 (.118)	1.05 (.120)
Rural	1.23 (.061)*	1.18 (.059)*	1.29 (.066)*	1.23 (.064)*
Very Low Expenditure		1.59 (.105)*		1.45 (.101)*
Low Expenditure		1.33 (.087)*		1.33 (.089)*
Medium Expenditure		1.28 (.080)*		1.28 (.080)*
State Dummies	No	No	Yes	Yes
Log Likelihood	-7064.13	-7051.99	-6815.43	-6806.58
No of Observations	13948	13948	13948	13948

Note:*Significant at 5% level of significance

Note:**Significant at 10% level of significance

Values in brackets denote standard errors

Reporting incidence rate ratios

Table 22: Comparison of Results for Disability by Author

Variable	Authors	
	Gupta	Ours
Age	Significant (+ve)	Insignificant (+ve)
(Age) ²	Significant (-ve)	Insignificant (+ve)
Male	Significant (-ve)	Insignificant (+ve)
Literate	Significant (-ve)	Significant (-ve)
Landless	Significant (+ve)	Insignificant (+ve)
Economic Independence		Significant (-ve)
Living with spouse	Significant (-ve)	Significant (-ve)
SC/ST	Significant (+ve)	Significant (+ve)
Islam		Insignificant (-ve)
Christian		Insignificant (+ve)
Rural	Significant (+ve)	Significant (+ve)
Very Low Expenditure	Significant (+ve)	Significant (+ve)
Low Expenditure	Significant (+ve)	Significant (+ve)
Medium Expenditure	Significant (+ve)	Significant (+ve)

Table 23: Comparison of Results for Chronic Ailments by Author

Variable	Authors	
	Gupta	Ours
Age	Significant (+ve)	Significant (+ve)
(Age) ²	Significant (-ve)	Significant (+ve)
Male	Insignificant (-ve)	Insignificant (-ve)
Literate	Significant (+ve)	Significant (+ve)
Landless	Significant (+ve)	Significant (-ve)
Economic Independence		Significant (+ve)
Living with spouse	Significant (-ve)	Significant (+ve)
SC/ST	Significant (-ve)	Significant (-ve)
Islam		Significant (+ve)
Christian		Significant (+ve)
Rural	Insignificant (+ve)	Significant (-ve)
Very Low Expenditure	Insignificant (-ve)	Significant (-ve)
Low Expenditure	Insignificant (+ve)	Significant (-ve)
Medium Expenditure	Insignificant (+ve)	Significant (-ve)

Table 24: Comparison of Results by Author for Disabilities by Count

Variable	Authors	
	Gupta	Ours
Age	Significant (+ve)	Significant (+ve)
(Age) ²	Significant (+ve)	Insignificant (+ve)
Male	Insignificant (+ve)	Insignificant (+ve)
Literate	Significant (-ve)	Significant (+ve)
Landless	Significant (-ve)	Insignificant (+ve)
Economic Independence		Significant (+ve)
Living with spouse	Significant (+ve)	Significant (+ve)
SC/ST	Significant (+ve)	Significant (+ve)
Islam		Insignificant (+ve)
Christian		Insignificant (+ve)
Rural		Significant (+ve)
Very Low Expenditure	Insignificant (+ve)	Significant (+ve)
Low Expenditure	Significant (+ve)	Significant (+ve)
Medium Expenditure	Insignificant (+ve)	Significant (+ve)

Table 25: Comparison of Results by Author for Perceived Health

Variable	Authors	
	Roy	Ours
Age	Significant (+ve)	Significant (+ve)
(Age) ²	Insignificant (-ve)	Significant (-ve)
Male	Insignificant (-ve)	Insignificant (+ve)
Literate	Significant (-ve)	Significant (-ve)
Landless	Significant (+ve)	Significant (+ve)
Economic Independence	Significant (-ve)	Significant (-ve)
Living with spouse		Insignificant (-ve)
SC/ST	Significant (-ve)	Insignificant (+ve)
Islam		Significant (+ve)
Christian		Insignificant (+ve)
Rural	Significant (+ve)	Significant (+ve)
Very Low Expenditure		Significant (+ve)
Low Expenditure	Significant (+ve)	Significant (+ve)
Medium Expenditure	Significant (+ve)	Significant (+ve)