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Title: Out-of-pocket expenditure on health care among elderly and non-elderly households in India

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Out-of-pocket expenditure on health care among elderly and non-elderly households in India

Abstract: Using the consumption expenditure data, National Sample Survey, 2009-10, this paper test the hypothesis that the monthly per capita household health spending of elderly households is significantly higher than non-elderly households in India. The households are classified into three mutually exclusive groups; households with only elderly members (elderly households), households with elderly and non-elderly members and households without any elderly member. The health spending include the institutional (hospitalization) and non-institutional health expenditure of the households, standardized for 30 days. Descriptive statistics and a two part model are used to understand the differentials in health expenditures across households.

Results indicate that the monthly per capita health spending increases with economic status, occupation, age and educational attainment of the head of the household. The monthly per capita health spending of elderly households is 3.8 times higher than that of non-elderly households. While the health spending accounts 13% of total consumption expenditure for elderly households, it was 7% among households with elderly and non-elderly members, and 5% among non-elderly households. Controlling for socio-economic and demographic correlates, the per-capita household health spending among elderly households and among household with elderly and non-elderly members was significantly higher than non-elderly households. The health expenditure is catastrophic for poorer households, casual labourer and households with elderly members. Based on the finding we suggest to increased access to health insurance and public spending on geriatric care to reduce the out-of-pocket expenditure on health care in India.

Keywords: Out-of-pocket expenditures, elderly, non-elderly, health care, India

Out-of-Pocket expenditure on health care among elderly and non-elderly households in India

Introduction

This paper tests the hypothesis that the per-capita health spending among elderly households is significantly higher than non-elderly households, across socio-economic groups and space. To test the hypotheses, we have used the unit data from the most recent round of consumption expenditure survey, conducted by the National Sample Survey (NSS) in 2009-10. For analytical purpose, the households are classified into three mutually exclusive groups, households with only elderly members, households with elderly and non-elderly members, and households without any elderly member. We have used two dependent variables, monthly per capita health spending and health spending as percentage of total household consumption expenditure. The differentials in health spending among elderly and non-elderly households controlling for socio-economic and demographic attributes of households is the central focus of the paper. The paper has been conceptualized with the following rationale. First, like many developing countries, India is undergoing rapid demographic and epidemiological transition. By 2010, 17 of the 29 states have reached the replacement level of fertility and the life expectancy at birth is more than 65 years (ORGI 2012). On the other-hand, the Non-communicable diseases (NCDs) account for 42% of total deaths in 2002 and likely to increase in future (ORGI 2001-03). Owing to the twin challenges of epidemiological transition (causing predominance of NCDs) and changing age-structure towards a visible ageing population, the health care implications for are manifold. Second, there has been increased political involvement and commitment to increase public spending on health in India. The High Level Committee Expert Group (HLEG) on health has recommended to increase central government health spending from 1.1% of GDP in 2008-09 to

3% of GDP in 2020 (MOHFW 2009, HLEG 2011). Thus, the allocation of increased public spending according to the health care needs of the population is of prime significance. Third, elderly are not a homogenous group and health spending differs significantly among elderly population. Fourth, the consumption expenditure data in India has been extensively used for measuring money-metric poverty and less on understanding the pattern of health expenditure. Only recently the consumption expenditure data are explored to understand the health spending in India (Pal 2010, Garg and Karan 2009, Aishwaria and Mohanty 2012). Fifth, though health financing is an important area of research in the context of changing demographics and economy, there are limited number of studies in India. A systematic analysis on the household health expenditure will help in guiding evidence based policies.

Most of the writings on the linkages of population aging and health spending are drawn from developed countries. These studies documented a higher per person expenditure among elderly compared to non-elderly, increase in age-sex specific health care expenditure and projected increase in health care cost in coming decades (Cutler and Meera 1997; Fuchs 1998; Mahal and Berman 2001; Fogel 2003). In 1995, the ratio of health spending for persons aged 65 years and above to persons under age 65 years was 4.8 in Japan and 3.8 in USA (Anderson and Hussey 2000). The high health care expenditure are attributed to the falling health among elderly, higher disability in later life, higher prevalence of chronic disease and co-morbidity among elderly (Gupta and Sankar 2003; Medhi and Mahanta 2007; Schoenberg et al 2007).

Though the relationship of health spending and health outcome is complex, higher per capita health spending is generally associated with higher income and improved health (Roy and

Howard 2007). Adjusting for cost of living, the per capita health spending in developed countries is about 30 times more than that of developing countries (World Bank 2006). Household expenditure on health care, mainly out-of-pocket (OOP) expenditure on health is directly related to the public spending on health i.e., OOP expenditure reduces with increase in public spending on health. For example, the public health spending in the UK and the USA is large compared to India. It has been documented that OOP spending significantly alters the household budget; reduces consumption of non-health goods and services, reduces accessibility to health care utilization and pushes many families to medical poverty trap (Whitehead et al. 2001). Research suggest that increased labor supply, reduction in non health expenditure, mobilizing cash/savings, asset sale, loan and income diversification are some of the measures adopted by the household to cope with high OOP expenditure (Abegunde and Stanciole 2008; Leive & Xu 2008).

The pattern of current health spending in India suggests that 71% of health expenditure is met by households, 20% by government (centre, state and local bodies), 6 % by firms and 2 % by external flows (MOHFW 2009). While there has been an increase in government health spending over the years, the focus remains on maternal and child health. On the other hand, out of 10.3 million deaths in 2005, 53 % were due to non-communicable diseases (Reddy *et al.* 2005). It is projected that by 2030, 45% of India's health burden will be borne by older population (WHO 2010). Though the OOP expenditure increases with age, little is known on the per capita health expenditure of elderly and non-elderly households and how does it vary across the socio-economic groups. In the context of changing demographics, economic development and

epidemiological transition, this paper explores the differentials in per capita OOP expenditure on health among elderly and non-elderly households in India.

Data and Methods

Data

The study uses the 66th round of schedule 1.0 (henceforth described as 66 (1.0)) data on consumption expenditure, collected by the National Sample Survey Organisation (NSSO) during July 2009-June 2010. The NSSO is the officially designated statistical system under the Ministry of Statistics and Programme Implementation, Government of India that periodically collects information on various socio-economic issues; consumption expenditure, employment and unemployment, migration, morbidity and health care etc through population based surveys. It uses the probability based sampling procedure and provides reliable estimates for states of India. The first round of National Sample Survey was conducted in 1950-51 and as of 2010, 66 rounds have been completed. The findings of these surveys has been extensively used among academia, researchers and by national and state government for policy formulation and program implementation (NSSO 2011).

The 66 (1.0) was the eighth quinquennial round on household consumer expenditure that collected data under two schedules¹, namely, Type 1 schedule and Type 2 schedule. While Type 1 schedule collected information with a reference period of 30 days and 365 days, Type 2 schedule collected information in a reference period of 7 days, 30 days and 365 days (NSS 2011). We have used Type 1¹ consumption schedule that covered 142 items on food, 10 items on medical expenses and 179 other items from 100,855 households. The medical spending is provided under institutional and non-institutional health spending for a reference period of 365

days and 30 days respectively. The institutional health spending refers to hospitalization; while, the non-institutional health expenditure is the out-patient services availed by the household. Ideally the unit data of hospitalization by each member of the household is the preferred data base for analyses but such information is available only for the 60th round (schedule 25) that was conducted in 2004. In such cases, we preferred to use the most recent data and examined the per capita health spending of elderly and non-elderly households. The household health expenditure is the sum of institutional and non-institutional health spending that includes expenditure on medicine, medical test, doctor's fee, hospital and nursing home charges and other medical expenses. We have used the institutional health spending that was collected in a reference period of 365 days, adjusted to monthly health expenditure and added with the non-institutional health spending (reference period of 30 days) to obtain the monthly household health expenditure. The household health expenditure is divided by household size to obtain the monthly per capita health spending. The per-capita health spending of the household and the household health spending as percentage of household consumption expenditure are the two dependent variables used in the analyses. The total household spending and household consumption expenditure are used interchangeably. The household is the unit of analyses and the analyses have been carried out for India and major states. The household weights (multiplier) are used for household level analyses and the population weights (multiplier*household size) are used for per-capita analyses.

Methods

For analytical purpose, the households are segregated into three mutually exclusive groups; namely, elderly households (all members are 60 years or more), households with elderly and non-elderly members, and non-elderly households (none of the member is 60 years or above).

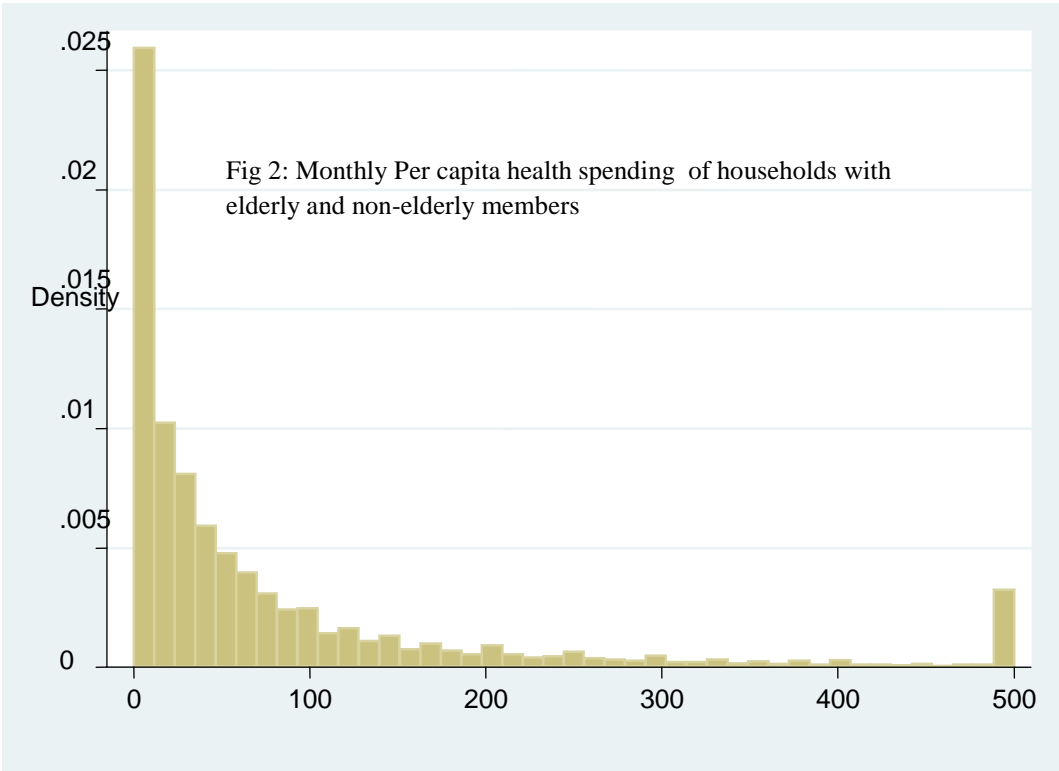
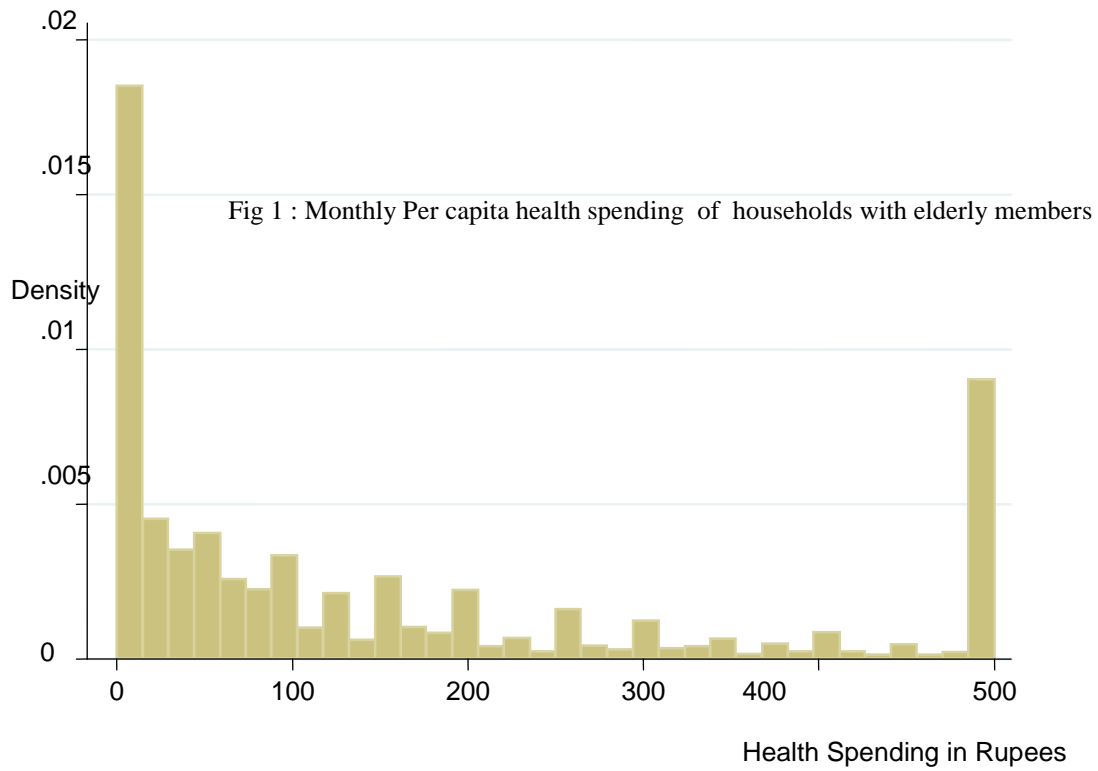
The health expenditure among elderly and non-elderly households are compared across socio-economic groups. Descriptive analyses and the multivariate techniques are used to understand the age dimension of health spending in India. The differentials in MPSH and health spending as percentage of household consumption expenditure are analyzed by household characteristics; place of residence (rural/urban), household size, caste, religion, monthly per capita consumption expenditure (MPCE) quintile and age and sex of the head of the household. Along with other variables, the states were classified by the stage of fertility transition and used in the analyses. The states with crude birth rate of less than 19 have either achieved or near to replacement level of fertility and likely to have relatively higher proportion of elderly population while states with birth rate of more than 23 have relatively higher fertility level and lower proportion of elderly population. Similarly, we have categorized the principal source of income of households into four groups; laborer, regular wage earner, self employed and others. The labourer households are the economically weakest group and those who have regular wage and salary are better off households. The health spending as a percentage of household consumption expenditure is computed to understand the relative differences in health spending of elderly and non-elderly households. In literature, when the health care spending exceeds some fixed proportion of total household expenditure (threshold limit of 5-10 percent of total household budget), the health spending is termed as catastrophic (Wagstaff and Doorslaer 2003, Garg and Karan 2005). Researchers also define catastrophic health spending as 40% of household's capacity to pay, where the minimum consumption expenditure is deducted from total household expenditure (Xu 2005). We have determined a cut-off of 10% of health spending of the household consumption expenditure as catastrophic.

A two part model was used to examine the determinants of health expenditure and to obtain the adjusted health expenditure by socio-economic characteristics of the household. The two part model is suitable as the health expenditure data have skewed distribution and about 29% households did not incur any health expenditure (zero value). The two part model separates the decision making process into two steps (Deb et al. 2006; Abegunde and Stanciole 2008; Matsaganis et al. 2008). In the first step, the probability of a household to incur expenditure is modeled using a logit model and in the second step the health expenditure is estimated using Ordinary Least Square (OLS) regression. The dependent variable is in binary form where '0' represents those who did not incur any expenditure on health and '1' represents those who had incur some expenditure on health. Given any positive expenditure on health, the second step estimates the intensity of health expenditure using an OLS regression, where the dependent variable is the log of health expenditure. The independent variables included in the analysis were type of household, place of residence, monthly per capita consumption expenditure (MPCE), size of the household and socio-economic and demographic characteristics of the head of the household.

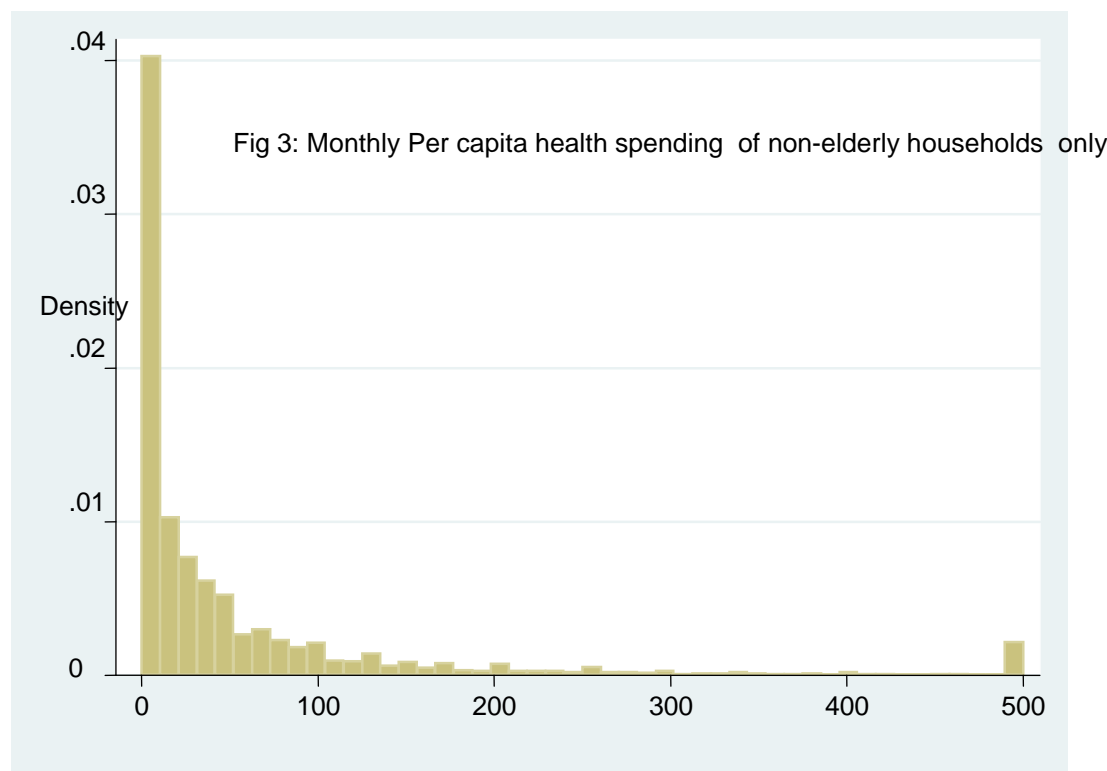
Results

We begin the discussion by providing the summary of key variables for three type of households; households with elderly members, households with elderly and non-elderly members and non-elderly households (Table 1). The distribution of households suggests that 3.4% are elderly households, 23.3% are households with elderly and non-elderly members and 73.4% are non-elderly households. Three economic indicators; average land holding size, main occupation of households and the monthly per capita consumption expenditure (MPCE) are used to compare

the economic well being of elderly and non-elderly households. The average land holding possessed by elderly household was 0.3 hectares compared to 0.5 hectares among non-elderly households and 0.8 hectares among households with both elderly and non-elderly members. Similarly, the proportion of households with any regular wage/ salary earning is least among elderly households. However, the MPCE of elderly households is higher than that of non-elderly households possibly due to higher health spending of elderly households compared to non-elderly households (3 times more). Studies also documented that when consumption expenditure is adjusted to household size and composition, the elderly household are the poorer than non-elderly households (Srivastava and Mohanty 2012). The gini index was 0.42 for elderly households only, 0.34 for households with elderly and non-elderly members and 0.36 for non-elderly household. Most of the differentials in economic, social and demographic parameter are statistically significant (chi-square and F test) indicating that elderly households are different from non-elderly households. The distribution of monthly per-capita health spending among elderly and non-elderly households is shown in Fig 1-3. In general, the distributions reflects higher health spending among elderly households. While a higher proportion of non-elderly households did not incur any health expenditure, it is significantly lower among elderly households.



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Socio-economic differentials in health spending among elderly and non-elderly households in India

The differentials in monthly per-capita spending on health by MPCE quintile and type of household indicates that even controlling for economic status, the per capita health spending among elderly households is significantly higher than non-elderly households (Fig 4). For example, the per capita health spending in the richest quintile was 442 rupees among elderly households only, 233 rupees among households with elderly and non-elderly members and 159 rupees among non-elderly households. The pattern is similar with respect to other quintiles. The ratio of MPSH, of households with elderly and non-elderly members to households without elderly members, increased across wealth quintile; from 1.3 in the poorest to 1.5 in the richest quintile indicating that health spending is linked to household economic well being. The pattern

is similar with respect to health spending as a percentage of household consumption expenditure (Fig 5). Among other things, the household health spending is directly linked to economic status and presence or absence of elderly members in the household.

Fig 4: Monthly per capita health spending (MPHS) by MPCE quintile among elderly and non-elderly household in India, 2010

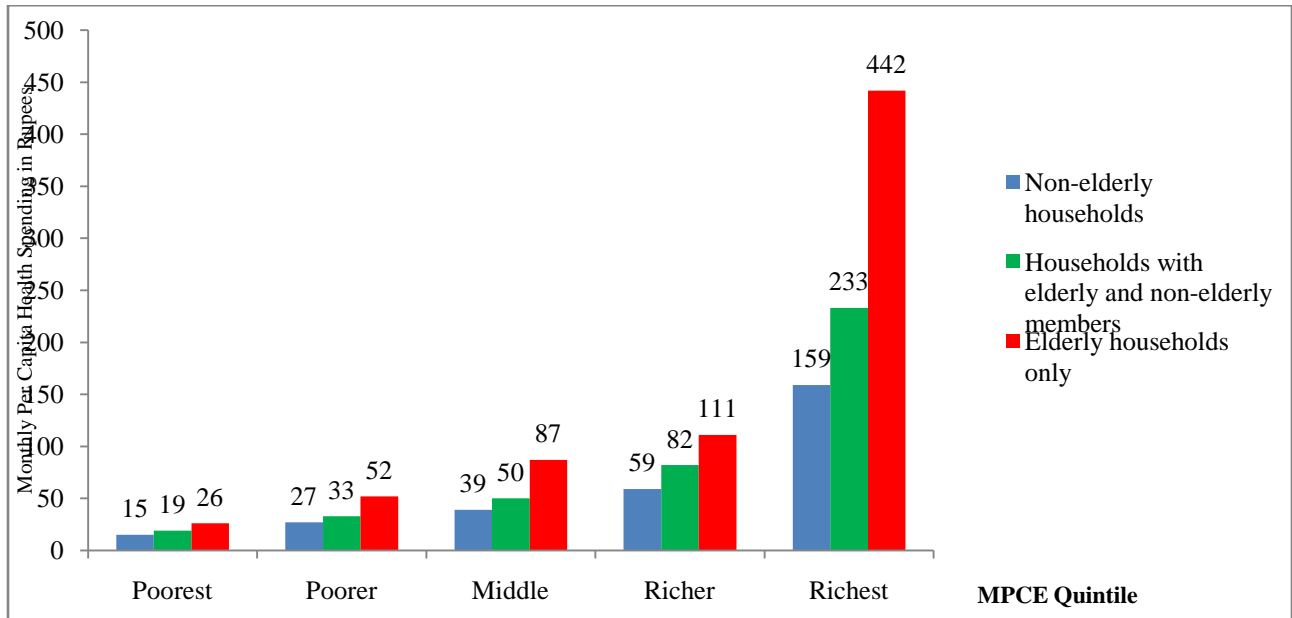


Fig 5: Monthly per capita health spending (MPHS) as percentage of household consumption expenditure among elderly and non-elderly household in India, 2010

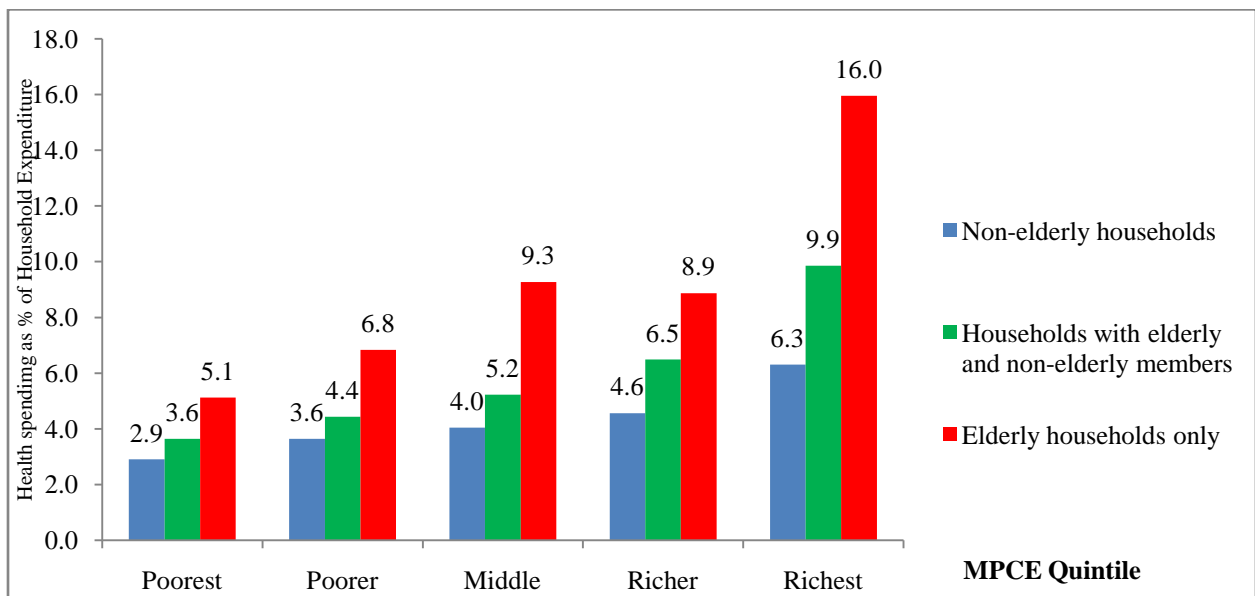
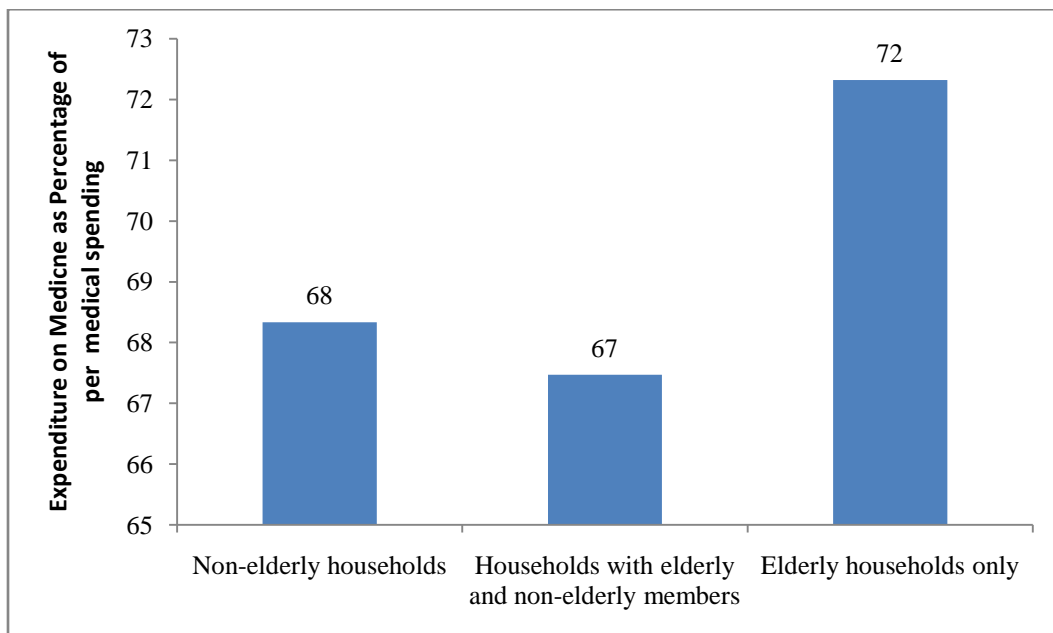


Table 2 reports the differentials in MPSH and household health spending as a percentage of total household consumption expenditure by social and demographic characteristics. The mean per capita health spending is higher in urban areas, states with low birth rate, other caste group, regular wage households and household head with higher educational attainment for all three type of household. On comparing the MPSH by the type of household we found that the ratio of MPSH of elderly to non-elderly households varies from 1.7-5.5 across these attributes. For example, among states with lower birth rate the MPSH of elderly households to non-elderly households was 3.4. On the other hand, the household health spending as percentage of consumption expenditure in India was 13% among elderly households, 7.1% among households with elderly and non-elderly members and 5% among non-elderly households. Among the states with lower birth rates, health expenditure accounts 14.8% of consumption expenditure among elderly households compared to 8% among households with elderly and non-elderly members and 5.4% in non-elderly households. The pattern is similar in states with low birth rate. This indicates that irrespective of levels of demographic transition in states of India, elderly households spend more on health care compared to non-elderly households. We have presented the differentials in health spending among social groups (caste and religion) in India. Among Schedule Caste (SC), elderly households spent 18.5% on health compared to 4.3% among households with elderly and non-elderly members and 3.6% among non-elderly households and the pattern is similar for other caste groups. Among Muslims, elderly households spent 11% of consumption expenditure on health compared to 7.3% among households with elderly and non-elderly members and 4.9% among non-elderly households. The health spending as a percentage of total consumption expenditure among regular wage households are higher for elderly households and households with elderly and nonelderly members compared to households

without elderly members. On keeping a limit of 10% household expenditure as cut-off point for catastrophic health spending as in earlier studies (Garg and Karan 2005), we found that the health spending is catastrophic for most of the elderly households and households with elderly and non-elderly members. However, the poorer household could not afford the health expenses and so any health spending for them may be termed as catastrophic. In all three type of households, medicine constitute higher proportion of expenditure; 72% among elderly households, 67% among households with elderly and non-elderly members and 68% among non-elderly households.

Fig 6: Per-capita health spending on medicine as percentage of monthly per-capita health spending



State Pattern in Household Health Spending in India:

To understand the state differentials in health spending in India, we have tabulated the monthly per capita spending on health and health spending as a percentage of household consumption expenditure for 14 states of India². These states constitute more than 90% of India's population and house to majority of the elderly in the country. Among elderly households, the mean MPHS

varies from 63 rupees in Odisha to 559 rupees in Kerala indicating that household economic condition is a key predictor of health spending. On comparing the MPHS across the states by type of households we found that the per capita health spending is highest among elderly households. Also the per capita health spending in households with elderly and non-elderly members is higher than that of non-elderly households in all the selected states except Chhattisgarh where the difference is small. Based on these findings it is clear that the per-capita health spending in elderly households is higher than that of non-elderly households in India. The pattern remained similar in states of India but varies by level.; from 7.5% in Odisha to 22.4% in Punjab. This is indicative that the health spending in elderly household is catastrophic for all the states of India. The differentials in health expenditure across type of household shows that the elderly households spent higher proportion of their expenditure on health compared to non-elderly households in each of the state. With ongoing fertility transition, the proportion of elderly households is likely to increase in coming decades resulting increase in proportion of households health expenditure.

Adjusted Per-capita Health Expenditure in India

We have estimated the monthly per capita health spending by socio-economic characteristics and type of households using a two part model (table 4). Results of the logistic regression suggest that the probability of incurring health expenditure was higher in households belonging to higher economic status and larger household size had higher odds of out-of-pocket spending on health. The conditional expenditure for households where elderly and non elderly members co-reside is 55% lower to that of elderly households. Similarly, the non elderly households had 70% lower per capita health spending compared to elderly households. With respect to the socio-economic

variables, the conditional expenditure on health increases with the economic status of the household. Similarly, households from states with moderate and high level of birth rates had 20% and 8% lower per capita health spending respectively, compared to those with low birth rates states. This may be linked to the ongoing process of demographic transition and consequent ageing in states of India. We have also presented the adjusted per capita health spending by the socio-demographic characteristics of households and head of the households. The overall pattern of adjusted and un-adjusted per capita health spending is similar but differs in magnitude. The adjusted per capita health spending was more than 3 times for elderly household compared to non elderly household. Likewise, the adjusted per capita health spending was almost 7 times higher in the richest quintile compared to the poorest. Thus controlling for other factors we found that elderly households, economically better off households and those with larger household size had higher probability to incur higher spending on health.

Discussion and conclusion

In last two decades the life expectancy at birth in India has increased over 10 years and likely to be over 70 years by 2023 (ORGI and Census Commissioner 2006). However, the increased longevity is associated with increased economic insecurity, decreasing familial support and falling health. While the economic insecurity is mirrored by little or no permanent income of elderly, the increased morbidity at later ages has increased the health care expenditure of elderly. Given the fact that the public spending and insurance coverage on health is low in India, the health spending is largely met by the household. Studies documented that the OOP expenditure on health tends to be catastrophic to many individuals/ families and poor households resort to borrowing and sale of assets to finance health care (Garg and Karan 2009; Peter et al 2001). In

the context of fast changing demographics, increased non-communicable diseases and increased medicare cost, the health expenditure is likely to increase in coming years and may push families and individuals to poverty trap.

The OOP expenditure on health care depends on many factors; household income, type of illness, age, sex, type of health facility and quality of care. The increased public spending on health care and increased access to health insurance can significantly reduce the OOP expenditure on health care. The National Rural Health Mission (NRHM), India is illustrative in this context that has significantly reduced the OOP expenditure on delivery care (Mohanty and Srivastava 2012). With rise in elderly population and the commitment to increase the public spending on health, there is a greater need to reallocate the resources to reduce the burden of OOP health expenditures on elderly. In this context, this paper provides evidences on the relative spending on health care among elderly and non-elderly households in India. We have used the most recent data from a population based survey that provides comprehensive information on the household consumption expenditure including health care. Owing to the nature of data available in consumption schedule, the analyses has been carried out at household level. However, the strength of our analyses lies in segregating the elderly and non-elderly households and comparing the per capita household health expenditure by social and economic attributes. We have validated that households with at least one elderly member is likely to spend more than that of a household without an elderly member, even controlling for socio-economic and demographic correlates.

Findings indicate that the mean OOP expenditure and the percentage of household health expenditure are significantly higher among elderly households compared to non-elderly

households. These findings are robust across the states of India indicating that the elderly households spent significantly higher on health care compared to non-elderly households. Results of multivariate analyses confirmed that the per capita health spending has a positive gradient with economic status of household, educational attainment of the head of the household and the presence of elderly member in the household. Though economic differentials in health expenditure was higher, we believe that many poor elderly are living with diseases and discomfort and not seeking health care owing to the cost of treatment.

Based on the finding we suggest increase in public spending on geriatric care and for non-communicable diseases. Though there are some social benefits schemes such as old age pension, tax concession and laws enacted for the care of elderly by the family, little effort has been made in providing the geriatric care and health needs for the elderly. Second, in the wake of epidemiological transition, we recommend the reallocation of health spending by national and state governments according to the changing health needs of the population. Third, the coverage of health insurance in India is lower than 10% and almost non-existent for elderly population. The increased access to health insurance scheme can significantly reduce the OOP health spending for elderly. Fourth, though the consumption schedule of NSS is comprehensive and included question on health expenditure, it does not have specific question on health insurance. We recommend adding few questions on health insurance that will provide more insights into financing household level health spending in India and provide the health expenditure along with members particulars.

Note:

¹ Type-1 schedule gathers information which is comparable to past rounds. In Type-2 schedule the recall period for group two items of food consumptions (edible oil, egg, fish, meat, vegetables, fruits, spices, beverages, processed food, pan, tobacco and intoxicants) were inquired for past week instead of past month.

²: The major states of India include Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand and West Bengal,

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Table 1: Socio-economic and demographic profile of elderly and non-elderly households in India, 2009-10

Variables	Elderly households (households with elderly members only)	Households with elderly and non-elderly members	Non-elderly households (only non-elderly members)	All
Percentage of households by type	3.4	23.3	73.4	100.0
Percentage of urban households	24.8	27.2	30.5	29.6
Mean household size#	1.6	5.7	4.3	4.5
Mean land holding (possess by household in hectares)#	0.3	0.8	0.5	0.5
Mean Monthly Per capita Consumption Expenditure (MPCE)	1671	1167	1202	1197
Gini index	0.415	0.344	0.361	0.358
% population belongs to first and second quintile	22.2	39.9	40.3	40.0
Monthly per capita health spending of the household	224	83	59	68
Monthly per-capita institutional health spending #	54	30	18	22
Monthly per-capita non-institutional health spending#	169	53	41	46
Characteristics of household head				
Mean age of head of household#	68.8	56.4	40.4	45.1
Percentage of household heads who are non literate	56.6	38.6	30.2	33.1
Percentage of households engaged in casual labour and other type of labour*	20.4	28.7	35.3	33.3
Percentage of households engaged in waged/salaried occupation*	1.5	8.8	12.8	11.5
Percentage of Hindu households*	86.5	83.3	83.1	83.3
Percentage of SC and ST households*	25.4	24.5	30.3	28.8
Number of households (N)	3125	24930	72800	100855

F-test and *chi-square test shows significant differences among the groups at 1% level

Table 2: Mean out-of-pocket expenditure on health (OOP) in rupees and household health spending as a percentage of household consumption expenditure by type of households in India, 2009-10

Variable	Elderly Households		Households with elderly and non-elderly members		Non-elderly households		Ratio of per-capita health spending	
	MPSH	Health expenditure as % of household consumption expenditure	MPS H	Health expenditure as % of household consumption expenditure	MPSH	Health expenditure as % of household consumption expenditure	Elderly househ olds to non-elderly househ olds	Households with elderly and non-elderly members to non-elderly households
Place of residence								
Rural	159	12.8	69	7.2	50	5.3	3.2	1.4
Urban	420	14.2	124	7.7	84	4.5	5	1.5
Birth rate								
Less than 19	271	14.8	113	8	79	5.4	3.4	1.4
19-23.1	144	9.3	59	5.4	48	3.9	3	1.2
> 23.1	174	12.1	65	6.7	47	4.9	3.7	1.4
Household Size								
1-3	224	13	151	9.3	94	5	2.4	1.6
4-6	224	16	92	7.1	55	4.8	4.1	1.7
7-9	-	-	63	6.5	41	4.9	-	1.5
10+	-	-	61	6.4	58	7.2	-	
Caste								
SC	211	18.5	35	4.3	32	3.6	6.6	1.1
ST	113	11	57	6.6	49	5.2	2.3	1.2
OBC	164	12.8	77	7.4	60	5.3	2.7	1.3
Others	368	13.8	115	7.4	76	4.6	4.8	1.5
Religion								
Hindus	212	12.9	80	7	58	4.8	3.7	1.4
Muslims	152	11	75	7.3	51	4.9	3	1.5
Others	412	18.2	132	10.6	109	6.6	3.8	1.2
Sex								
Male	242	14.1	82	7.1	59	4.9	4.1	1.4
Female	156	10.4	92	7.2	70	5.5	2.2	1.3
Marital Status								
Never Married	214	7.6	99	7.2	48	1.5	4.5	2.1
Currently married	245	14.7	82	7.1	59	5.1	4.2	1.4
Widowed/ Divorced	170	10.5	85	6.8	66	5.8	2.6	1.3
Education								
Illiterate	122	11.6	58	6.8	44	5.4	2.8	1.3
Primary	245	16.1	76	7.2	53	5.5	4.6	1.4
Secondary	318	13.4	91	7.1	67	5.2	4.7	1.4
Higher Secondary	568	13.4	156	7.5	93	4	6.1	1.7
Type of Household								
Labourer	85	9	55	6.9	45	5.5	1.9	1.2
Self Employed	199	13	79	6.8	58	5	3.4	1.4
Regular wage/salary	380	16.1	143	7.1	101	4.5	3.8	1.4
Others	303	14.4	133	8.6	77	4.3	3.9	1.7
All	224	13.4	83	7.1	59	4.9	3.8	1.4

*MPSH: Monthly per capita spending on health; hh: household, Sex, marital status and education refers to the households

Table 3: Mean out-of-pocket expenditure on health (OOP) in rupees and OOP as a percentage of household consumption expenditure by type of households in states of India, 2009-10

States	Mean MPSH in Rupees				MPHS as percentage of MPCE				Ratio of per capita health spending of	
	Elderly Households	Households with elderly and nonelderly members	Non-elderly households	All	Elderly Households	Households with elderly and nonelderly members	Non-elderly households	All	Elderly households to non-elderly households	Households with elderly and non-elderly to non-elderly households
Andhra Pradesh	254	93	62	73	15.7	7.5	4.5	5.4	4.1	1.5
Bihar	86	36	27	29	8.6	4.9	3.7	4.0	3.2	1.3
Chhattisgarh	84	32	37	36	8.6	3.9	4.6	4.5	2.3	0.9
Gujarat	195	85	69	75	9.0	6.3	4.9	5.4	2.8	1.2
Karnataka	179	60	46	52	10.6	5.4	3.3	4.0	3.9	1.3
Kerala	559	190	168	184	19.4	11.1	8.3	9.7	3.3	1.1
Maharashtra	280	117	89	102	14.6	8.0	5.6	6.6	3.1	1.3
Madhya Pradesh	332	61	48	54	21.9	6.3	4.9	5.5	6.9	1.3
Odisha	63	42	37	39	7.5	5.2	4.5	4.7	1.7	1.2
Punjab	426	133	133	136	22.4	7.3	7.8	7.8	3.2	1.0
Rajasthan	160	63	49	54	9.4	5.6	4.2	4.6	3.3	1.3
Tamil Nadu	160	98	79	86	12.2	7.8	5.6	6.3	2.0	1.2
Uttar Pradesh	158	76	60	66	10.7	8.1	6.1	6.8	2.6	1.3
West Bengal	215	89	59	69	12.3	7.8	5.6	6.4	3.6	1.5
Other states	259	69	42	51	11.2	5.5	3.0	3.8	6.2	1.7
India	224	83	59	68	13.4	7.1	4.9	5.7	3.8	1.4

F-test shows significance differences in MPSH among type of households in each state

MPCE: Monthly Per-capita Consumption Expenditure, MPSH: Monthly per-capita Health Spending

Table 4: Predicted mean health expenditure (in rupees) by socio-economic and demographic correlates in India

Demographic and socio economic covariates	β (Logit)	Confidence Interval		β (OLS)	Confidence Interval		Predicted monthly per capita health expenditure
Sector							
Rural							51
Urban	-0.20	-0.29	0.13	0.58	0.54	0.62	85
Type of household							
Elderly households							189
Households with elderly and non elderly members	-0.21	-0.41	-0.01	-0.55	-0.65	-0.43	70
Non elderly Households	-0.66	-0.89	-0.43	-0.70	-0.82	-0.58	54
MPCE Quintile							
1							19
2	0.37	0.27	0.47	0.46	0.40	0.52	31
3	0.61	0.20	0.71	0.80	0.74	0.85	45
4	0.91	0.80	1.014	1.17	1.11	1.23	67
5	1.26	1.14	1.37	1.87	1.81	1.94	141
Education of head of household							
Illiterate							47
Primary	0.01	-0.08	0.10	-0.03	-0.07	0.02	54
Secondary	-0.05	-0.14	0.04	-0.08	-0.12	-0.03	66
Higher Secondary	-0.20	-0.32	-0.09	-0.13	-0.19	-0.07	95
Employment of household							
Labour							45
Self employed	-0.02	-0.10	0.06	-0.15	-0.19	-0.10	59
Regular wage/salary	-0.14	-0.25	-0.04	-0.13	-0.19	-0.07	95
Others	-0.09	-0.20	0.03	-0.10	-0.16	-0.04	89
Caste							
SC							34
ST	0.21	0.08	0.33	0.20	0.13	0.27	51
OBC	-0.00	-0.12	0.11	0.22	0.16	0.28	58
Others	0.17	0.05	0.28	0.14	0.13	0.27	78
Religion							
Hindus							60
Muslims	0.30	0.19	0.40	-0.06	-0.11	0.01	52
Others	0.05	-0.07	0.18	0.01	-0.05	0.08	90
Age of household							
Lt 30							65
30-39	-0.23	-0.35	-0.11	-0.12	-0.18	-0.05	52
40-59	-0.33	-0.45	-0.22	-0.12	-0.23	-0.04	56
60-69	-0.36	-0.54	-0.17	-0.13	-0.23	-0.04	74
70+	-0.05	-0.28	0.18	-0.07	-0.18	0.05	94
Sex of the household							
Male							59
Female	-0.04	-0.18	0.09	0.11	0.03	0.19	72
Marital Status							
Never married							68
Currently married	1.10	0.93	1.29	0.09	-0.05	0.22	59
Widowed/Divorced/separated	1.09	0.87	1.31	0.01	-0.14	0.17	70
Household Size							
1-3							93
4-6	0.45	0.38	0.52	-0.15	-0.19	-0.11	57
7-9	1.00	0.89	1.12	-0.17	-0.23	-0.11	46
10+	1.59	1.35	1.82	-0.06	-0.13	0.05	58
Birth rate							
Less than 19							79
19 to 23.1	-0.48	-0.56	-0.40	-0.20	-0.25	-0.15	45
More than 23.1	0.30	0.22	0.37	-0.07	-0.11	-0.04	51
Constant	-0.68	-1.01	-0.36	2.79	2.6	2.98	

**Appendix 1 : Percent distribution of elderly and non elderly households and mean MPCE
by type of household in India, 2009-10.**

States	Percentage of households			Mean MPCE in Rs				Number of			
	Elderly households	Households with elderly and non elderly member	Non elderly households	Elderly households	Households with elderly and non elderly member	Non elderly households	All	Elderly households	Households with elderly and non elderly member	Non elderly households	All
Andhra Pradesh	4.36	18.96	76.68	1617	1234	1382	1350	397	1729	6992	9119
Bihar	1.69	17.86	80.45	995	725	731	731	119	1258	5667	7044
Chhattisgarh	3.63	15.94	80.43	984	824	801	808	77	341	1719	2137
Gujarat	2.92	25.06	72.02	2163	1339	1400	1388	145	1240	3564	4949
Karnataka	2.43	25.52	72.05	1692	1115	1389	1297	132	1391	3926	5449
Kerala	4.46	34.91	60.64	2887	1707	2013	1894	150	1177	2045	3372
Maharashtra	4.68	26.87	68.45	1916	1473	1581	1550	454	2604	6636	9694
MP	2.92	19	78.08	1518	962	979	980	165	1076	4420	5661
Odisha	3.46	25.57	70.97	842	818	826	823	131	966	2682	3779
Punjab	3.37	29.54	67.09	1900	1810	1699	1743	74	652	1481	2208
Rajasthan	2.39	22.95	74.65	1712	1118	1181	1167	124	1187	3861	5172
Tamil Nadu	6.13	21.16	72.71	1316	1262	1400	1363	483	1669	5735	7887
Uttar Pradesh	3.28	26.13	70.59	1476	942	975	969	465	3696	9988	14149
West Bengal	3.11	21.94	74.95	1748	1140	1055	1086	254	1793	6124	8170
Other states	1.71	22.14	76.15	2307	1259	1365	1340	206	2671	9187	12064
India	3.35	23.25	73.4	1671	1167	1203	1197	3,377	23,451	74,027	100,855