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Living Arrangement: How does it relate to the Health of the Elderly in India?

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Abstract: Approaching 80 million in number, India has the second largest population of elderly people after China. The living arrangement of the elderly is seen as a parameter of great importance in understanding their plight in developing countries because of the lack of public institutions and social security nets. Using the India Human Development Survey–2005 (IHDS), a 40,000 household nationwide multi-topic dataset collected by the University of Maryland in collaboration with National Council of Applied Economic Research, we examine whether the living arrangements of the elderly have any bearing on the status of their health or the amount spent on treatment when sick. Furthermore, for a limited sample we also test an intermediary variable – a household decision making index - that we believe informs us of the functioning of the family and should have a relationship with health outcomes like seeking treatment and how much is spent.

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Data collection was completed in November 2005 and the data are still being validated. These results are based on preliminary data and may change once final data are available.

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Introduction

Most elderly live in the developing world. Approaching 80 million in number, India has the second largest population of elderly people after China. Until recently, demographic research on developing countries rarely focused on this group because they constitute a relatively small percentage of the total population. However, with rapid declines in fertility and mortality rates and longer life expectancies in several countries, the elderly are a growing segment of the population, and the full implications of this change have yet to be played out. The twin forces of modernization and urbanization may complicate matters further, since many of these countries are not institutionally adapted to handle the transition from traditional social support systems for the elderly to more modern ones (Treas and Logue, 1986). In most of the developing world, it is normative to expect that the well being of the elderly is the responsibility of their children, often their adult sons.

In India, research on examining the socio-economic dynamics of elderly well being is gradually gaining ground, but access to good data continues to be an obstacle. Analyses based on National Sample Survey and the Census data highlight the urgency of the problems faced by the elderly (Gupta & Sanker, 2002; Gupta et. al., 2001; Visaria, 2001; Rajan et. al., 1999). High rates of widowhood, especially among women leave many of the elderly destitute. Poor health coupled with a lack of jobs leave others economically insecure. Lack of access to adequate health care to address long term illnesses is another cause of grave concern. The fragmentation or migration of family members changes the dynamics of family support as the number of elderly living alone or with a spouse rises (Rajan and Kumar, 2003). Within the last decade, both the Central and the State governments have made a commitment to address destitution of the elderly by various pension and development programs (Rajan et. al, 1999). However, the programs are relatively new and the effects still need evaluation.

The living arrangement of the elderly is seen as a parameter of great importance in understanding their plight in developing countries because of the lack of public institutions and social security nets. Using the India Human Development Survey–2005 (IHDS), a 40,000 household nationwide multi-topic dataset collected by the University of Maryland in collaboration with National Council of Applied Economic Research, we examine whether the living arrangements of the elderly have any bearing on the status of their health or the amount spent on treatment when sick. Furthermore, for a limited sample we also test an intermediary variable – a household decision making index - that we believe informs us of the functioning of the family and should have a relationship with health outcomes like seeking treatment and how much is spent.

The Elderly in India

India's elderly are growing faster than the general population. According to the 2001 Census estimates, the elderly constitute about 7.45 % of the total population. India is one of the few countries where the elderly sex-ratio favors males. Given that the life expectancy of women is greater, this anomaly can only be explained by cultural factors where girls and women are relatively devalued. Declines in fertility and mortality rates are changing the dependency ratio of young and old to working age population quite

rapidly such that while the first is decreasing, the latter is rising. Dependency ratios for the old have been rising from10.5 in 1961 to 11.8 in 1991 and it is projected to be 16.1 by 2021 (Rajan et. al, 1999).

Most elderly live in rural areas. Many live in various types of extended families commonly called joint families. See Table 1. Since most of India practices patrilocal residence, it is common to find the elderly living with sons and daughters-in-law and grand children. In land owning households, it is in fact the sons who often continue to stay with the parents and work on the family farm. Of course, in the poorest classes where survival depends upon wage labor, joint families are less common. Since a majority of people in India work in the unorganized sector, for many of the elderly, there is no formal age of retirement. They continue to work in the fields or on their businesses or in their homes until they are unable. According to 1991 Census around 61% of the male elderly continue to work beyond the age of 60. See Figure 4 for IHDS estimates.

Historically, the elderly in joint families have always been accorded a high degree of respect and command a greater degree of authority than the younger members of the household. Many major decisions of the household are either taken by the elderly, in most cases men, or in consultation with them. This remains the case in many joint families even today. To the extent that this is true, they are relatively well cared for within the means afforded by the family. In fact gender studies have often explored how daughters-in-law serve the family and are in charge of much of the care giving, often to their own detriment. However, following rapid industrialization and urbanization, the younger generation (especially males) is increasingly leaving home in search of employment. Some remit money home to support the family left behind, while others just move away taking their wives and children, leaving the elderly parents behind. In the latter case, the well being of the elderly is put at risk because there are few, if any, extra-familial institutional supports. Sometimes the parent left behind may be a widow or widower.

The marital status of the elderly varies remarkably by gender. See Figure 3. Most elderly men are currently married, whereas most elderly women are widows. This results from a combination of cultural and biological factors. In most parts of India women marry men much older than them and this combined with the fact that women have greater longevity leads to many women outliving their husbands by several years. In addition, in many parts of India it is acceptable by tradition for men to remarry after being widowed, but this is proscribed for most widows. Unfortunately, the lives of elderly widows are often quite sad. They form the largest proportion of the elderly who are destitute. Through their life course most women are dependent on men -first their father, then their husband, and finally their son. A woman’s well being after she loses her husband depends on whether the son or other children support her.

However, there is a lot of variation by State in both the numbers and the characteristics of the elderly. The states in the south of India have always been far more progressive on many demographic indicators like fertility, mortality, literacy, sex-ratio, etc. Thus states like Kerala have a much higher percentage of elderly population (around 10%) while Meghalaya and Assam (around 5%) have half that (Rajan et al, 1999). While overall literacy levels are quite low among the elderly, gender differences are particularly

stark. But here again, Kerala stands out with almost 80% of elderly men and almost 55% of elderly women literate according to 1991 census. While on the other hand, in Rajasthan, less than 25% of the elderly men and less than 5% elderly women are literate. In fact, the entire northern belt of states like Uttar Pradesh, Uttaranchal, Bihar, Punjab, Haryana, Himachal Pradesh reflect large gender gaps in literacy for the elderly. Theses low levels of literacy contribute to depressed wages and earnings among the elderly.

To address the problems of the elderly in India, the Central government in collaboration with the State governments has launched a program called the National Social Assistance Program. This program works through a couple of pension schemes (National Old Age Pension and National Widow Pension Scheme) but is available only to the truly destitute elderly that receive no family support. In terms of health care facilities, maternal and child health concerns still dominate priorities and thus elderly illnesses have received very little attention (Rajan and Kumar, 2003; Visaria, 2001).

Research on Living Arrangements

Since there are few extra-familial institutional options for the welfare of the elderly in developing countries, the study of living arrangements has become an important parameter in understanding the dynamics of their well being. However, because aging populations have been seen as mainly a developed country concern, there is still very limited research on the phenomena.

John Bongaarts and Zachary Zimmer (2002) studied the living arrangements of older adults in 43 developing countries around the world using data from Demographic and Health Surveys (DHS). They found that while most of the older adults live in large households, often with adult male children, the elderly were more likely to live alone than people of other ages. Moreover, the average proportion living alone was nearly twice as high for women (11 percent) as for men (6.5 percent), largely because women experience a higher risk of widowhood than men. There were important regional differences. Older adults in Asia, for example, are more likely than elderly people in Africa or Latin America to be living with children. Roughly two-thirds of Asian men and women aged 65 years and older live with adult children, compared with about half of Africa's elderly and slightly more than half of older people in Latin America.

In Asia, much of the research on elderly living arrangements has focused on countries in East and South East Asia, since they were among the first to experience a decline in fertility and mortality and increased life expectancies in the developing world. Martin (1989) examined the factors that influenced the living arrangements of the elderly in Fiji, Korea, Malaysia and the Philippines and found that while most of the elderly in Asia lived with their children, factors like number of surviving children, home ownership and being male increased the likelihood. On the other hand, survival of a spouse reduced the likelihood of living with children. Similarly, in Thailand a majority of elderly co-reside with their children or live in residences adjacent to them (Sobieszczyk et. al., 2002). Other studies have also reported that a large percentage of the elderly in Asian countries like India, Singapore, Thailand and South Korea co-reside with their children (Hashimoto, 1991). In Bangladesh, even if the married children are not in the same

residence, they often reside in a separate household, but within the same compound (Amin, 1998).

The early research in India on the living arrangements of the elderly was actually motivated by an interest in fertility dynamics. Some authors examined whether there is a link between the desired number of children and the security children provide during old age (Cain, 1986; Vlassoff, 1990; Cain, 1991; Dharmalingam, 1994). Though the debate remains unresolved due to the lack of good data on decision making dynamics, it is quite clear that in all the studies of India, most elderly were found to co-reside with their children. In their paper on living arrangements based on NFHS data, Rajan and Kumar (2003) report that 80% of the elderly live with their adult children. This is even more the case if the elderly are widowed. Just as in other parts of Asia, the currently married status of the elderly does seem to reduce the probability of co-residence with children, while the number of surviving children has the opposite effect (Rajan and Kumar, 2003; Dharmalingam, 1994). Furthermore, Rajan and Kumar (2003) found that males were much more likely to have the status of heads of an intergenerational household than elderly women. Unfortunately, when women are heads, it is often because they are destitute widows or living alone. Both small case studies as well as data from NFHS reveal more elderly women living alone than elderly men in India.

Though the research on the elderly in India is just beginning to gain ground, there is no doubt that their welfare in the foreseeable future depends on their families.

Research linking Living Arrangements with the Health of the Elderly

Increasing urbanization, modernization, rising individualism, women's labor force participation and mobility are among the many factors that have been cited as threatening the survival of intergenerational households. This in turn is seen as increasing the marginal and precarious existence of the elderly (Rajan and Kumar, 2003; Visaria, 2001; Planning Commission, 2001). As long as societies have inadequate institutional infrastructure for the well being of the elderly, residence with the family is largely seen as the best arrangement.

What is alarming is the growing number of elderly single female households. They may be widows or never-married women. In most cases, such women have no surviving children to care of them and very little if any wealth to fall back on (Sobieszczyk et. al, 2002; Planning Commission, 2001). Increasingly, survival means having to work late into their old age (Vlassoff, 1991; Dharmalingam, 1994). Analysis of gender differences in elderly well being reveals that these women are not only poorer than their male counterparts, but they are less educated too.

However, more recently several studies have begun examining whether living with children is the best solution for elderly welfare. Hermalin (1997) has argued that it is important to distinguish between form and function when studying living arrangements because it is too easy to equate family structure with content. Subjective measures of well-being cannot automatically be inferred from objective measures of living arrangements. However, the lack of data has inhibited research that is able to investigate the functioning of families.

One promising line of research is examining intra-household allocation of resources between the different members of the family to understand whether members really benefit from being part of an extended family household (Strauss and Thomas, 1996). Kochar (1999) in her analysis of the familial support for medical expenditure of the elderly in rural Pakistan, actually finds that the benefit to the elderly is not clear. There seems to be a significant correlation between individual contribution of older males to the households and the amount spent on medical expenditure. Since individual contributions decline with age and disability, medical expenditures also seem to reduce, despite greater need for medication. Moreover, she also finds that medical expenditures on older males do not vary with changes in household income and the income of younger males in the household. Pezzin and Schone (1997) find similar results for intergenerational households in the US where they examine health care utilization by elderly parents. Refuting Gary Becker's (1981) now famous model where family members try to maximize a single utility function by pooling their resources, they find that allocation decisions in inter-generational households are best modeled as outcomes of a bargaining process.

Though there have been a few studies exploring the health of the elderly in India, there have been no studies to our knowledge investigating the link between living arrangements and health status. Most studies on health have either tried to explore the general health status of the elderly or examined how gender impacts health. Many studies have reported that older women tend to report higher levels of morbidity than older men (Sobieszczyk et. al., 2002; Dandekar, 1996; George, 1996; Rahman, 1994; Verbrugge, 1989). Since health care access in poor countries is fairly limited, self reported health is often used. However, since perception plays a large part in self reports, it is unclear whether the differences in health are actually true or a function of women being more likely to admit to vulnerabilities. A study based on diagnosed long term illnesses in India found little difference based on gender in health status or health seeking behavior, but significant difference in medical expenditures (Gupta et. al, 2001). Older men were likely to spend a little more money on seeking treatment than older women. However, income and education were the strongest predictors for health seeking behavior. These variables are in turn affected by work status and widowhood status, making women especially vulnerable to lower well being than men. On the other hand, a study done by physicians in Bangladesh on the elderly to specifically address the question of how accurate self reported health is with actual physical measures of health found a close correlation between the two (Rahman and Barsky, 2003).

While it is clear that family support is essential for elderly well being, the thesis has yet to be tested for India. Furthermore, we agree with Hermalin (1997) that only studying form is inadequate. We believe that a measure that captures the decision making dynamics in the household may add further clarity to how a family actually functions and thus lend an insight into how this impacts health outcomes.

In this paper, we propose to explore the relationship between living arrangements and elderly health controlling for known factors such as gender, income, education, access to health care and region. Since most studies have found that caste forms an important dimension of inequality in India, we include it as one of our controls. We first

analyze three separate but related questions - (1) Does the health status of the elderly vary with their living arrangement?; (2) Does care seeking behavior of the elderly who are sick differ with living arrangement?; and finally, (3) Is there a difference in the amount spent on medical expenses based on living arrangements? We expect the determinants of the first question to be quite different. We then replicate the three models on sample limited to the joint families, but include an elderly decision making index to see if the relative empowerment of the elderly in the household affects their health outcomes. So we essentially test whether having greater power in household decision making has an effect independent of the co-residing family structure.

Data and Method

In 2004 and 2005, the University of Maryland and the National Council of Applied Economic Research designed and fielded a survey of over 40,000 Indian households. The India Human Development Survey, 2004-2005, was conducted throughout India in 35 states and Union Territories and included urban as well as rural areas. This data collection was funded by grants from the National Institute of Health to the University of Maryland. The survey not only collected detailed roster, household income, education and consumption information but also asked about the incidence of short term morbidity, long term morbidity, and the ability to perform activities of daily living of all household members, including information on whether they sought treatment and the expenditures incurred because of it.

The three short term illnesses on which data is available are fever, cough and diarrhea. For major morbidity information, only illnesses that were diagnosed were asked about. Respondents were asked about whether any family member was diagnosed with diabetes, hypertension, cancer, asthma, polio, cataract, tuberculosis or other long term illness. The data shows that most elderly had no diagnosed problem. Hypertension was the most common illness.

As part of the survey, ever-married women between the ages of 15 and 49 were asked a series of five questions about decision making in the household. For each decision, the woman reported whether she, her husband, a senior male, a senior female, or someone else had a say in that decision. After reporting who had some say in the decision, the respondent was asked who had the most say in making that decision. The five decisions investigated were:

- What to cook on a daily basis?
- What to do if a child falls sick?
- How many children to have?
- Whether to buy an expensive item such as a TV or a fridge?
- To whom your children should marry

We create an empowerment index based on these decisions. While clearly, this scale is based on a daughter-in-law's perception, we do believe it may be an adequate proxy since in most households she is the least empowered and would be less likely to present a distorted picture of empowerment in the family.

We limit our sample to the elderly population. Most demographic researchers in India and other developing countries define the elderly as people who have attained the age of 60 and above. Factors such as life expectancy and age of retirement in the formal sector tend to influence who are considered the elderly in a country, but the definition remains open to criticism as life expectancy continues to increase. For the purposes of this analysis we also define the elderly as people aged 60 and above. In our data we have a total of 18,025 people in this age category.

Dependent Variables

We use logistic regression for the first two questions on likelihood of falling sick and likelihood of getting treatment when ill. We use OLS regression for the amount spent on medical treatment. The ***likelihood of falling sick*** is a categorical variable of short term morbidity which takes the value of "1" if they have fallen sick in the last month and "0" if they remained healthy. The ***likelihood of seeking treatment*** is again a categorical variable that is coded as "1" if they sought care from an outside provider and "0" if they did not. For the OLS regression the dependent variable is a ***logged variable on medical expenditures*** that includes not only the doctor's fee, but the cost of medication and any travel that was exclusively undertaken for the treatment. Summary statistics for the independent and dependent variables are included in Table 1. Table 2 presents the percentage of men and women who experienced fever, cough or diarrhea within the month prior.

Future analyses will also include a series of regressions modeling long term morbidity as the dependent variable. The frequency of these illnesses for elderly men and women is included as Table 3.

Independent Variables

Though the parameters determining the likelihood of falling sick may be different from that of seeking treatment, in all the models our main variable of interest will be living arrangement. We identify 5 different types of family co-residence patterns in our data- ***single, couple, nuclear, joint family and collateral joint*** (Table 4). The elderly who live on their own is the smallest group. This is followed by elderly who live with a spouse. There are quite a few who live in a nuclear family with their children and this forms a third type. Finally there are two types of extended families. The largest type is households where three generations reside together, where the elderly reside either as the head or as parents of the head of the household. A smaller number of elderly live in joint families, in which not only three generations reside, but multiple married brothers with their wives and children live together. Here the elderly may be parents or they may be a brother or unwed sister. These are relatively larger households. We call them collateral joint. Each of these family types are entered as dummy variables into the model with the first kind of joint family being the omitted category. A control is included for the total number of people in the household.

In the second set of multivariate analyses, our focus is on a decision making index measuring empowerment. ***Empowerment*** is measured as four decision-making indices that range from 0 (least power) to 4. The scales are counts of the number of issues on which the woman identifies that person as having the most say in the household. We exclude the cooking item from these counts because of its lower correlation with the

other four decisions. The Cronbach's alpha reliability is 0.70 for the respondent's decision-making scale, 0.71 for the husband's, 0.64 for the senior females' and 0.71 for the senior males'. We use the latter two indices in our analysis (Table 5).

All of our regression models include controls for the respondent's age, marital status, position in the household, work status, household wealth, educational attainment, social group membership, and area of residence. We use dummy variables to identify whether or not the elderly respondent is married (Figure 3) and whether the respondent is identified as being the head of household (Table 6). We control for the respondent's work status operationalized as participation in any sector of work including wage work, work in a business, farm work, or animal care (Figure 4).

Wealth is measured using a constructed scale of the number of consumer goods owned from a list of 23 (e.g., television, chair or table, car). The Cronbach's alpha reliability of the index is 0.88. We rescale this assets index into five approximately equal quintiles (Table 7). Economic standing is also measured through the use of a dummy variable recording land ownership.

Respondent's education is measured by two dummy variables: *primary* (grades 1 – grade 8) and *secondary* (grade 9 and above), both of which are compared to respondents with no formal schooling. We measure social group membership through the using caste, tribe, and religion to distinguish six different social groups: high caste Hindus (25%), other backward castes (37%), dalits or scheduled castes (19%), adivasis or scheduled tribes (5%), Muslims (10%), and other religions (4%). Caste-like divisions among non-Hindus are ignored. These groups are included in the regression analyses as dummy variables with high caste Hindus serving as the comparison group.

Respondents are classified as living in rural or urban areas based on the Indian census definition. Regional diversity is so large in India that we control for it in all regression analyses. State dummies are used to capture region effects. To control for sample design, we also use a dummy variable to identify whether the household is part of the panel roster.

Preliminary Results for Short Term Morbidity

We begin our analysis by examining the dynamics of living arrangements on short term morbidity. We first regress the likelihood of experiencing any of the three types of short term morbidity measured (cough, diarrhea, fever) during the past month. Next, we regress the likelihood of receiving treatment among those who reported being sick. Our third regression models the logged medical expenditures for those experiencing any of the short term illnesses. Results are presented in Table 8.

As anticipated, the parameters that predict health status seem to be different from the parameters that predict health seeking behavior or amount spent on medical expenditures. Preliminary results suggest that living arrangements are quite crucial to the health status of the elderly, controlling for all other factors. However, they are not significantly associated with health seeking behavior or the amount spent on medical expenditures.

Residence in an extended family, regardless of structure seems to provide protection from falling sick with short term illnesses, all other things being equal. On the other hand, those elderly who live alone are almost 4 times as likely as their counterparts in joint families to fall ill. They fare the worst. Elderly in nuclear family households are significantly more likely to fall ill than those in joint families but are better off than elderly who reside with only a spouse. In addition to the structure of the family, it also seems to help having more adults in the household to care for them.

For the control variables in the first model, our results mostly agree with research done in other developing countries, where the health of the elderly is dependent upon a host of factors like wealth, urban residence, education, and gender. The elderly seem less likely to fall ill if they live in wealthier households, are located in urban areas, and have at least a secondary education. Like other studies, we find that elderly women have a higher likelihood of falling sick with fever or cough than elderly men.

Among the controls, we have surprising results on caste affiliation and household headship, but as there is very little if any research on the relationship of these variables to health it is hard to evaluate if our finding is unusual. With respect to caste differences, after controlling for all factors, there seems to be little difference in the likelihood of falling ill between high caste Hindus and elderly from other castes and Muslims. However, Scheduled Tribes seem to be significantly less likely to fall sick not only compared to other Hindu's but compared to all other castes and religions. This is an interesting finding because many of the tribes live in relatively remote areas and have quite a different diet from other communities. Perhaps their lifestyle and relative isolation lends them protection from germs and viruses that cause such short term morbidity. While they are often disadvantaged in terms of socio-economic status, the elderly seem to be in better health. Secondly, the elderly from religions like Sikh, Christian and Jain seem to be more likely to fall ill than high caste Hindus. This is an unexpected result as on most other socio-economic indicators, people belonging to these faiths in India have equal status or better compared to high caste Hindus. Also surprising is the fact that the likelihood of falling ill is higher for elderly who are the heads of their household even after controlling for age.

With respect to the other two models, according to our results, living arrangement seems to have little effect on the likelihood of receiving treatment or the amount spent on medication, once all factors are controlled for. Without controls, being single significantly reduces the likelihood of seeking treatment and reduces the amount spent on medical expenditures. But controlling for socio-economic status, living arrangement seems to have no bearing on whether the elderly seek treatment or not. The likelihood of seeking treatment is more a function of wealth of the household in which the elderly resides and the length of time they have been sick.

The OLS model for the determinants of logged medical expenditure also indicates that wealth is a significant component of the amount spent on elderly health care. Elderly in wealthy households who seek treatment are likely to have higher medical expenditures than those who are poor, holding all other factors constant. Less educated elderly seem to spend less on their health if sick, even after controlling for wealth. The coefficients for caste affiliation are interesting. Elderly from Other backward castes, Scheduled Tribes

and Muslims seem to have comparable medical expenditures as high caste Hindus. But Scheduled Castes seem to incur higher medical expenditures than high caste Hindus. This is rather surprising as this group is disadvantaged in many ways in India. Elderly from other religions like Christian, Sikh and Jain have higher medical expenditure than Hindus. Since these communities are quite prosperous, it is not surprising that they would spend more for medical reasons. Finally, as is to be expected there is a significant association between number of days sick and medical expenditures.

[Analysis on the impact of empowerment as an intermediate variable and long term morbidity not done as yet]

Discussion : [To be done]

Preliminary Conclusion

While our research is unable to determine causality because of the complex nature of relationships and feed back loops between living arrangements and elderly health, it seems clear from our preliminary analysis on short term morbidity that given the present institutional environment, the elderly are least prone to short term illnesses when living within a large joint family. At this stage of our analysis it is hard to say why exactly it is so. But we can conjecture that perhaps being able to share the burden of survival with other adult members as well as partake in all the activity of the younger generation keeps them alert, engaged and healthy compared to elderly in other situations.

Table 1. Means of Independent and Dependent Variables

	Mean	Std. Dev.	Min	Max
Dependent Variables				
Fell Sick in Last Month	0.10	0.30	0	1
Received Treatment if Sick	0.94	0.24	0	1
Logged Medical Expenditures	0.47	1.53	0	9.95
Independent Variables				
Family Structure				
Single	0.02	0.15	0	1
Couple	0.09	0.29	0	1
Nuclear	0.12	0.33	0	1
Joint Family	0.63	0.48	0	1
Collateral Joint	0.13	0.34	0	1
Number of Adults in Household	4.26	1.95	1	22
Age	67.76	7.41	60	105
Head of Household	0.45	0.50	0	1
Female	0.49	0.50	0	1
Married	0.59	0.49	0	1
Urban	0.30	0.46	0	1
Land Ownership	0.51	0.50	0	1
Assets Quintile	3.21	1.48	1	5
High Caste Hindu	0.26	0.44	0	1
Other Backward Caste	0.35	0.48	0	1
Scheduled Caste	0.18	0.38	0	1
Scheduled Tribe	0.07	0.25	0	1
Muslim	0.09	0.29	0	1
Other Religion	0.05	0.21	0	1
Primary Education	0.18	0.39	0	1
Secondary Education	0.22	0.41	0	1
Respondent Works	0.38	0.49	0	1
Number of Days Unable to do Usual Activities	6.36	6.96	0	30
Panel Sample	0.38	0.49	0	1

Source: India Human Development Survey-2005

Table 2: Short Term Morbidity among men and women 60 and older

Illness	Men	Women
Diarrhea	2.8	2.59
Cough	7.44	8.63
Fever	8.76	10.79
No problem	89.75	87.61

Source: India Human Development Survey-2005

Table 3: Major Morbidity among men and women 60 and older

Illness	Men	Women
Cancer	0.26	0.16
Tuberculosis	0.88	0.59
Heart Disease	2.05	1.7
Diabetes	3.75	3.4
Other Long term	3.94	4.35
Asthma	3.46	2.93
Cataract	2.83	3.89
High Blood Pressure	5.5	6.93
No Diagnosed problem	79.31	79.3

Source: India Human Development Survey-2005

Table 4.Living Arrangements of persons aged 60 or older by gender in India (weighted)

Family Types	Percent Men	Percent Women	Total
Single	1.03	3.59	2.28
Couple	12.12	7.43	9.83
Nuclear	16.84	6.44	11.77
Joint	59.69	66.78	63.15
Collateral Joint	10.32	15.76	12.97
Total	100	100	100

Source: India Human Development Survey-2005

Table 5: Percent of Members Having "Some say" or "Most say" on Five Decisions.

	Percent Participating			
Decisions	Respondent	Husband	Senior Female	Senior Male
Cook				
Some Say	94	45	25	13
Most Say	74	12	12	2
Treatment of Sick Child				
Some Say	85	84	18	16
Most Say	30	60	4	6
Number of Children				
Some Say	84	92	12	8
Most Say	19	76	3	2
Purchase an expensive item				
Some Say	75	90	20	22
Most Say	11	74	3	12
Choose Child's Marriage Partner				
Some Say	79	91	24	25
Most Say	10	73	3	14

Source: India Human Development Survey-2005

Table 6.Relationship to Head of household of persons aged 60 or older by gender

Relationship to head of household	Percent Men	Percent Women	Total
Head	**80.3**	**13.51**	**47.63**
Wife/husband	**0.85**	**35.3**	**17.7**
Son/daughter	0.31	0.12	0.22
Child-in-law	0.04	0.13	0.08
Grandchild	0.03	0.04	0.03
Father/mother	**15.39**	**43.89**	**29.33**
Brother/sister	0.99	0.8	0.9
Parent in-law	1.05	3.5	2.25
Nephew/niece	0.06	0.06	0.06
Sibling in-law	0.09	0.35	0.22
Other relatives	0.82	2.14	1.46
Servant/other	0.08	0.16	0.12
Total	100	100	100

Source: India Human Development Survey-2005

Table 7.Socio-Economic Status of persons aged 60 or older by gender

Socio-Economic Status	Percent Men	Percent Women	Total
Poorest Households	20.35	21.61	20.96
2	19.94	19.58	19.77
3	17.02	16.82	16.92
4	19.28	18.72	19.01
Wealthiest Households	23.41	23.27	23.35
Total	100	100	100

Source: India Human Development Survey-2005

Table 8. Regression Models of Elderly Health on Living Arrangements

	Likelihood of Getting Sick	Likelihood of Receiving Treatment	Logged Medical Expenditures
Family Type (Joint Family omitted)			
Single	3.722**	0.682	-0.216
	-0.575	-0.376	-0.249
Couple	2.228**	0.68	0.027
	-0.246	-0.335	-0.166
Nuclear	1.538**	1.322	0.137
	-0.15	-0.564	-0.15
Collateral Joint Family	1.065	0.696	-0.133
	-0.109	-0.317	-0.173
Number of Adults in Household	0.954*	1.099	0.038
	-0.023	-0.115	-0.03
Age	1.021	1.221	0.086
	-0.056	-0.237	-0.075
Age-squared	1	0.999	-0.001
	0	-0.001	-0.001
Urban	0.762**	0.492	-0.07
	-0.073	-0.193	-0.161
Landownership	1.121	0.602	0.148
	-0.081	-0.204	-0.119
Assets Quintile	0.884**	1.429**	0.254**
	-0.023	-0.177	-0.043
Other Backward Castes	1.085	0.936	0.233
	-0.091	-0.381	-0.129
Scheduled Castes	1.006	1.143	0.314*
	-0.094	-0.515	-0.15
Scheduled Tribes	0.734*	0.58	0.073
	-0.105	-0.297	-0.234
Muslims	0.921	1.482	0.246
	-0.113	-0.818	-0.171
Other Religions	1.450*	0.41	0.631*
	-0.223	-0.454	-0.32
Primary Education	1.034	0.781	-0.318*
	-0.085	-0.307	-0.137
Secondary Education	0.806*	0.969	-0.146
	-0.08	-0.388	-0.169
Head of Household	1.404**	0.906	0.019
	-0.124	-0.306	-0.147
Married	0.932	1.36	0.169
	-0.074	-0.542	-0.122
Respondent Works	1.086	1.08	-0.037
	-0.076	-0.317	-0.107
Female	1.631**	0.831	-0.231
	-0.143	-0.312	-0.148
Number of Days Unable to Perform Usual Activities		1.139*	0.081**
		-0.066	-0.007
Constant			0.161
			-2.744
Observations	17083	1509	1824
R-squared			0.23

Note: All Models include controls for State and Panel Study

* significant at 5%; ** significant at 1%

Source: India Human Development Survey-2005

Figure 1.Literacy of Men and Women age 60 and over – Rural, Urban and Total

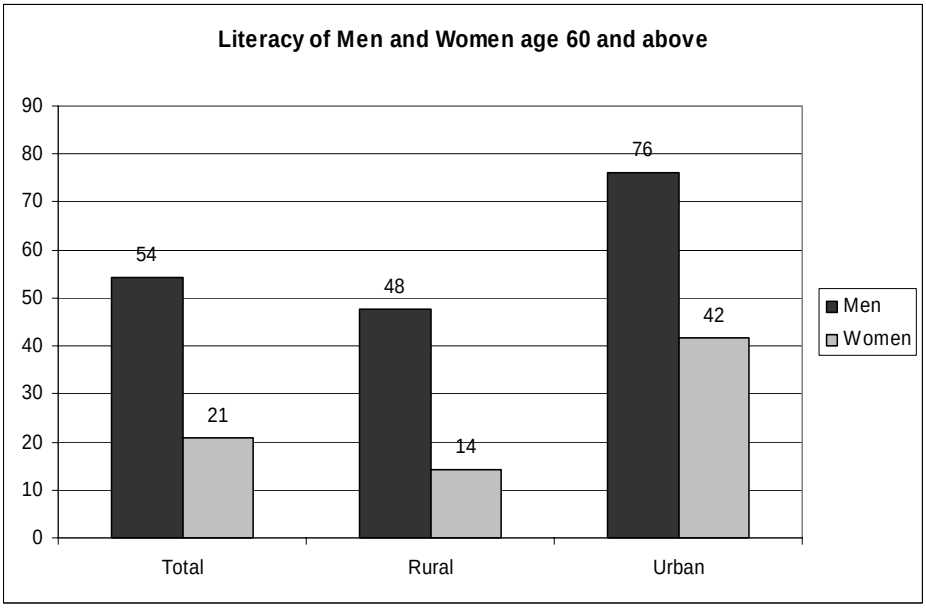


Figure 2.Relationship to Household Head among Men and Women age 60 and above

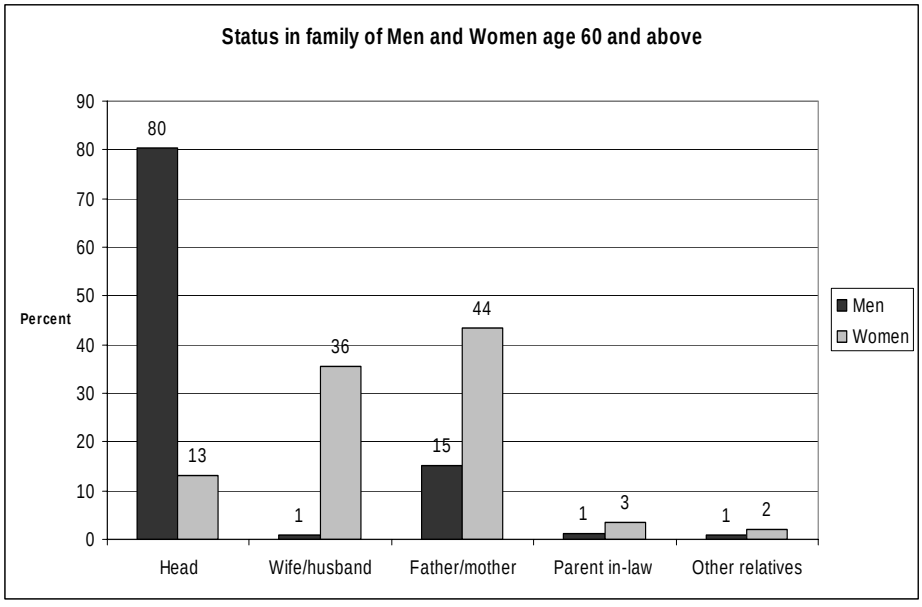


Figure 3.Marital Status of Men and Women age 60 and above

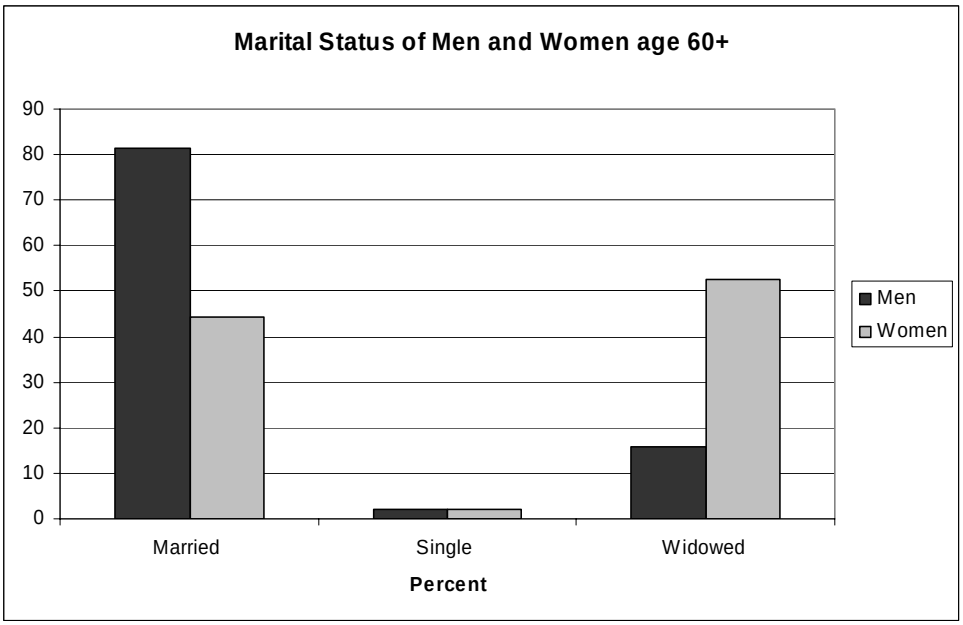
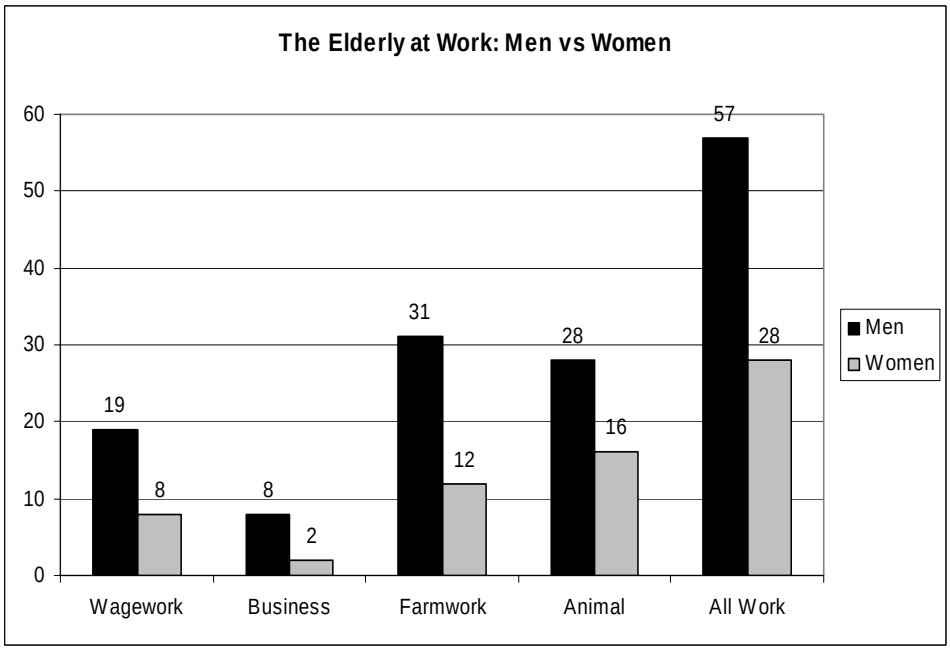


Figure 4.Percent of Men and Women age 60 and above who Work in various sectors



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