Health and Health Care of Elderly Living Alone in India: An Urgent Need for Public Support System

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Abstract

More than 100 million population (8% of total population) in India are elderly, higher than the combined population of UK and Canada. Paper highlights the health and health care of elderly in India according to living arrangement by analyzing 39,694 elderly data from NFHS-2. Overall 3% of total elderly are living alone in India, 1.7% men and 4.5% women. Significant variations in morbidity among the elderly exist with respect to living arrangement and gender. Female elderly living alone has worst health status but males are more prone to environmental and nutritional risk. Also, elderly living alone have poorer treatment seeking behaviour than elderly living with family. In India, there are no conscious policies and programmes directed towards elderly living alone. Given the shrinking family support system, the findings call for urgent health care strategies and a strong public support system to cater the health needs elderly living alone in India.

Key words: elderly, living condition, health risk, treatment seeking, gender differential, India

Introduction

Accelerated population ageing experienced in the last few decades is an unprecedented phenomenon. Currently, this is more in the developing countries (Kumar 1997). Decline in fertility and mortality rates makes for a gradual process of aging in the society. The UN noted that by the middle of this century, one in five people will be 60 or older, and more than 2 million people will be 100 or older in the world. By 2020, the number of elderly people is projected to reach more than 1000 million, with 70 percent living in developing countries, especially in China, India, Indonesia, Brazil, and Pakistan. India has the second largest elderly population in the world after china. Recent evidence from India suggests a growing prevalence of morbidity and poor health status along with significant increases in longevity in the elderly population (Alam 2000). Gender is a very important variable that influences quality of life at all ages. India is one of the few countries in the world where men outnumber women at all ages till about 70 years. Clearly, the interests of the elderly, including their health concerns, are poised to take on greater prominence in coming years. In India there have been few studies on living arrangements of the elderly and the inherent gender differential. This paper tries to examine the gender differential in living arrangement of the elderly in India and the impact of the living arrangement on their health status and treatment seeking behaviour by exploring data from the second National Family Health Survey (NFHS-2) conducted during 1998-99.

In India, there are variations in the gender differences in mortality (Bhatt 1998; Sengupta and Agree 2001). Considering the generally low status of women (Basu 1992) in the northern and north-western states in India, it is likely that socio-economic marginalisation through the life course makes older women in these states more vulnerable to ill health than older men. There is evidence that in India as well as in other countries in South Asia, marriage and the presence of sons is associated with better survival of the elderly as well as health outcomes (Rahman 2000; Sengupta and Agree 2001). In a patriarchal society, where gender roles are strictly followed, as in India, and where women do most of the housework and care giving, co-residence with one's spouse may be more beneficial for men since women do most of the care giving and house keeping. Yet, Indian women may benefit more than their husbands from the presence of the spouse and sons in the household, mainly owing to their general dependence and the socio-cultural security of having a spouse (Lamb 1999). One of the consistent findings from earlier studies is the positive association between socio-economic status and health (Ross and Wu 1996; Zimmer and Amornsirisimboon 2001).

Study of the pattern of living arrangements of older persons is very important in order to understand how dependent these elderly are upon their offspring and how strong this support system still is. It would also provide some information regarding the need to introduce institutionalized care for older persons. Yet, the idea of institutionalization of older persons seems to remain a taboo in India as the family is still seen as playing an important role in providing support for its members. In India, our understanding of the determinants of elderly living alone has been limited because of paucity of large representative data sets including detailed information on their socio-economic, and

health status. There are also gaps in knowledge about the effects of socioeconomic conditions on the health of the elderly, changes in risk factors and morbidity, and the needs of the elderly. The impact of old age on women might be different from that of men because of differences in their status and role in the society. This is specially so because proportion of widows in 60+ age group is considerably higher than of widowers in India. For policy point of view also, there is a need to look into the gender differential in the socio-economic and demographic characteristics of the elderly in general and health and treatment seeking behaviour in particular according to their living arrangement. In view of the above, specific objectives of this paper is to explore:

- spatial variation of elderly population living alone in India by sex.

- living arrangement of elderly according to their socio-economic, demographic characteristics by sex.

- Influence of living arrangement of elderly in their health status, health risk and treatment seeking behaviour.

Data and Methods

The data for the study comes from India's second National Family Health Survey (NFHS-2) conducted during 1998–99. This survey was designed on the lines of the Demographic and Health Surveys (DHS) that have been conducted in many developing countries since the 1980s. NFHS-2 collected demographic, socio-economic, and health information from a nationally representative probability sample of 92,486 households. All the states of India are represented in the sample (except the small Union Territories), covering more than 99 percent of the country's population. The sample is a multi-stage random sample with an overall response rate of 98 percent. Details of sample design, including sampling framework and sample implementation are provided in the basic survey report for all India (IIPS & ORC Macro 2000). The present paper is based on 39,694 elderly people, which had been extracted from all India household samples of around 5,00,000 persons. The household data were obtained from face-to-face interviews conducted in the respondents' homes, which elicited a range of demographic and socioeconomic information on each member of the household.

Living arrangements defined here are based on the information obtained from the relationship of the various household members to the head of the household in NFHS-2. It is then categorized into two groups: older persons living with family which includes spouse, children and other relatives and older persons living without family i.e., they are living alone. Bivariate as well as multivariate techniques have been used for data analysis. In bivariate analysis, cross tabulation is done with the study variable by different dependent variables. The chi-square technique has been applied wherever necessary to explore significant differentials. In multivariate analysis, binary logistic regression analysis has been restored. Further GIS (Geographical Information System)

Maps have been prepared to show the state wise spatial variation in total elderly population and elderly population living alone in India.

Human subjects informed consent

The analysis presented in this study is based on secondary analysis of existing survey data, with all identifying information removed. The survey obtained informed consent from each respondent before asking questions.

Results

Spatial distribution of elderly population in India by sex

Overall, India has 8% of elderly population (Table 1). Male elderly accounts for 8.2% whereas female elderly accounts for 7.8% of the total population. The states of Punjab have the highest percentage of elderly population (11.1%) followed by Kerala (10.2%). Overall, there are 11 states in India, which falls above the national average of the overall elderly population and rest of the 15 states falls below the national average of the overall elderly population.

Considering gender, Punjab has the highest percentage of male elderly population followed by Himachal Pradesh. However, the state of Goa ranks first in the percentage of female elderly population (10.9 %) followed by Punjab (10.8%) and Kerala (10.7%). There are 13 states, which fall above the national average of male elderly population, and the rest 13 states falls below the national average. There are 13 states, which fall above the national average of male or female elderly population, and the rest 13 states falls below the national average.
<Table 1 and FigureMap 1 about here>

Spatial distribution of elderly population living alone in India by sex

Overall, 3% of the elderly populations in India are living alone (Table 2). Male elderly living alone accounts for 1.7% whereas female elderly living alone accounts for 4.5% which is significantly higher than male elderly. Nagaland and Tamil Nadu has the highest percentage of elderly population living alone (7% each). Overall, 11 states fall above the national average of the elderly population living alone and 15 states below the national average. Nagaland rank first (5%) in the percentage of male elderly living alone followed by Arunachal Pradesh (4.3%).However, Tamil Nadu rank first (11.3%) in the percentage of female elderly living alone followed by Nagaland (9.6%).
<Table 2 and Map 2 about here>

Living arrangement of the elderly by background characteristics

Table 3 shows the percentage distribution of elderly population in India according to their background characteristics and also by their living arrangement during 1998-99. Some of the socio-demographic and economic factors which have a bearing on the living arrangements of older persons include age, gender, marital status and employment status. Considering age, a majority (62%) of the elderly population belonged to age group 60-69 years. According to the living arrangement, elderly living alone were found comparatively less in the lower age group compared to elderly living with family. This indicates that relatively more older person (70+) are living alone than with family (42.3% and 37.6%, respectively). More female elderly (71%) are living alone than male elderly. The marital status of the elderly shows that 62% are currently married and 37% widowed. On the other hand, majority of the elderly living alone are widowed (86%) than the elderly living with family (35%). Also a negligible proportion of the total elderly as well as elderly living with family (about 1.5%) are found to be divorced, never married and not living together. However, a substantial proportion (about 7%) of the elderly living alone are found to divorced, never married and not living together. Type of place of residence shows that majority of elderly resides in rural areas (76%). No significant differential has been found in the residence pattern according to living condition of the elderly. Educational attainment of the elderly shows that, a majority (65 %) of the elderly are illiterate and a very less proportion (8%) of the elderly are educated upto high school and above. Relatively more proportion of elderly living alone (76%) are illiterate than elderly living with family (65%). A majority of the elderly are Hindus (82.5%) followed by Muslims (10.6%). An almost similar proportion of religious affiliation is found according to the living condition of the elderly. Considering caste/tribe status of the elderly, almost 40 % of the elderly belonged to other castes followed by other backward class (34%), scheduled caste (18 %) and scheduled tribe (8%). In contrast more proportion of elderly living alone belonged to scheduled caste (24 %) than elderly living with family. A shift from other caste to scheduled caste in case of elderly living alone is noticed which indicates that, elderly living alone mostly belonged to the weaker section of the society than elderly living with family. Considering the household standard of living (SLI), 46% of elderly belonged to a medium SLI followed by low (31%) and high SLI (23%). On the other hand, a majority (75%) of the elderly living alone belonged to a lower SLI. It may be because of the fact that as standard of living has been computed with the help of different consumer durable goods and amenities available in the household., it may be possible that elderly living alone may not have as many durable goods as elderly living with family. Another reason could be that an old person living alone might not need much durable goods than a person living with family needs. Therefore, here SLI may not give a true picture of the economic status of the elderly. Looking at the working status, 35 % of the elderly in India are still working. However, almost half of the elderly living alone are working than elderly living with family. Further, most of the elderly and more elderly who are living alone are working for salary.

<Table 3 about here>

Gender differential in the living arrangement of elderly by background characteristics

Table 4 shows gender differential in the living arrangement of elderly by background characteristics in India during 1998-99. Considering age, both male and female elderly population are more or less equally distributed. However, a slightly higher percentage of female elderly are found in the lower age group (60-69) than male elderly which may be due to the marriage pattern in India. According to the living condition, both male and female elderly living alone are comparatively more in the higher age group (70+ years) than elderly living with family.

It is important to know about the likely marital status of the elderly, because that could influence the overall level of care and support they receive both from their family and society (Gulati 1993). Considering the marital status of the elderly, more than half the female elderly are widowed whereas a majority of the male elderly is married. However, most of the female elderly living alone are widowed (95%) compared to 65% of male elderly living alone which indicates that, a majority of the elderly after being widow or widower is not even living with their children. However, the differences in the incidence of widowhood arise for several reasons, the most important of which are the following: (a) sex differentials in the age at marriage, (b) women having married men who are significantly older than themselves and therefore belonging to cohorts which are exposed to a higher risk of mortality, (c) the higher expectation of life of women and (d) the significantly higher rate of remarriage among men compared with women (Gulati 1993).

A relatively higher proportion of male elderly living alone resides in urban area and further more in capital/large city whereas majority of female elderly resides in rural areas. A significant gender differential has been seen in the educational attainment of the elderly. A majority (82%) of the female elderly are illiterate compared to 50 % male elderly. A negligible proportion (2%) of the female elderly are educated upto high school and above compared to 13% of male elderly. Again 88% of the female elderly living alone are illiterate compared to 47 % of the male elderly. A less proportion of male elderly living alone than living with family are Muslim whereas a slightly higher proportion of male elderly living alone belonged to Sikh, Christians and Others religion. There exists no gender differential according to caste/tribe status among elderly. However, a significant differential in caste/tribe status is seen according to the living condition. Relatively more proportion (27%) of scheduled caste is found among male elderly living alone, than living with family (18%). On the contrary less proportion of male elderly living alone belong to other backward class. Similarly, in case of female elderly relatively more proportion (23%) of scheduled caste is found among female elderly living alone than living with family (17%). On the contrary, the proportion of other caste decreases from 41 % among female elderly living with family to 31% among female elderly living alone. It shows that a relatively less proportion of other backward class male and other caste female elderly live alone and a higher proportion of scheduled caste male as well as female elderly lives alone. According to household standard of living (SLI) no significant gender differential is found. However, according to living condition, a significant difference in the SLI is seen for both male and female elderly. A

higher proportion of male elderly living alone (63%) as well as female elderly living alone (80%) are found in the lower SLI and a very less percentage were in the high SLI. There exist a significant gender differential in the working status of the elderly. About 55% of the male elderly are working compared to only 14% female elderly. However, the gap between the working status of the male and female elderly gets minimized according to the living condition. About 61% of the male elderly living alone are working compared to 41% female elderly living alone. It indicates the miserable condition elderly living alone particularly to the female elderly who are forced to work for their survival. Again, a significant gender differential is seen according to working for salary. About 94% of the male elderly living alone are working for salary compared to 81% female elderly living alone. However, living condition among female elderly shows a significant differential for working for salary. Almost all (98%) female elderly living alone are working for salary compared to 79% female elderly living with family, which is even more than the male elderly. It shows that most of the female elderly living alone are bound to work for salary for their survival, which indicates the inadequate public social support given for the widow women. In most of the background characteristics female elderly living alone are far behind the male elderly. They are more illiterate, more from the weaker section of the society and are bound to work for a living.

<Table 4 about here>

Health status and health risk among elderly according to living arrangement

Reliable, comprehensive data on the health of the elderly is somewhat lacking in most countries of the world. There are numerous methodolical problems related to the determination of health status at older ages (Ebrahim, 1996), many of which have been compounded by the exclusion of older persons from large-scale studies. A reluctance to study health status in later life has been attributed to difficulties surrounding the multiplicity of pathological conditions that exist in old age, and also to ageism (Sen, 1996).

Table 5 presents the health status and health risk among elderly according to their living condition. Health status can be a result rather than the cause of specific living arrangements. For example, parents co-residing with their children, receiving emotional support may feel less lonely and thus be less prone to depression than those living alone. A significant differential has been found in the health status of the elderly according to living condition. Higher proportions of elderly living alone (15%) are suffering from asthma than elderly living with family (10%). Almost double proportion of elderly living alone (2.7%) is suffering from TB than living with family (1%). A huge differential also has been found among elderly regarding the treatment of TB according to living condition. Only half of the elderly living alone has received treatment for TB compared to 84% living with family. In case of malaria and jaundice, also a remarkable differential is found according to living condition of elderly. Elderly living alone have been found more prone to malaria and jaundice than elderly living with family. It indicates lack of

care and support towards elderly living alone that results them into the higher risk of infectious and communicable diseases.

On the other hand, looking towards the health risk behaviour among elderly, in most of the risk behaviours like drinking alcohol and smoking, elderly living alone are behind the elderly living with family except for chewing tobacco. But other health risk factors related to environment and nutrition are found more among elderly living alone. Significantly more proportion of elderly living alone do not purify drinking water and use unclean fuel to cook, than elderly living with family. Nutritional risk has been seen for salt use. A significantly higher proportion of elderly living alone are using coarse salt (70%) than elderly living with family (56%). Moreover, iodine content in salt has been found to be nil among 41% of elderly living alone than 30% of elderly living with family. Thus it is found that not only the health status of elderly living alone is poorer than elderly living with family but also they are more prone to environmental and nutritional risk factors.

<div align="center"><Table 5 about here></div>

Gender differential in health status and health risk by living arrangement

Table 6 shows the gender differential in health status and health risk by living condition. Relatively more proportion of male elderly are found to suffer from asthma and TB than female elderly. Moreover, living alone further worsen the health status of both male and female elderly. Further, looking at the treatment pattern of TB, a remarkable gender gap has bee found. More proportion of male elderly (86%) has got treatment for TB compared to female elderly (74%). Moreover, if female elderly are living alone, almost two third of them did not get any treatment for TB. On the other hand, in case of malaria and jaundice, gender differential is not found. However, male or female elderly living alone are found to be more prone to malaria and jaundice than they live with family.

Looking at the health risk behaviour, a huge gender differential has been found in all the health risk behaviour. Male elderly are significantly more indulged in drinking, smoking and chewing tobacco than female elderly. Moreover, male elderly living alone are found to be more indulge in drinking, smoking and chewing tobacco habits than male elderly living with family. Also, female elderly living alone are found to be chewing tobacco more than elderly living with family. Looking at the environmental risk factors like drinking water and fuel, no gender differential exists. However, according to their living condition, a significant differential is found. Higher proportions of male as well as female elderly living alone do not purify drinking water than elderly living with family. Also, more proportion of female (84%) elderly living alone use unclean fuel than 74% of female elderly who lives with family. Gender differential has also not been found in case of nutritional risk. However, it is their living condition, which makes difference in the nutritional risk. Higher proportion of male and female elderly living alone uses coarse salt than elderly living with family. Also, more proportion of female and male elderly living alone uses salt with zero iodine content than elderly living with family.

<div align="center"><Table 6 about here></div>

Gender differential in treatment seeking behaviour among elderly by living arrangement

Table 7 presents the gender differential in treatment seeking behaviour by living condition among the elderly. Though there does not exist any gender differential in the treatment seeking behaviour of the elderly, but differential can be found according to their living condition. Relatively a higher proportion of male elderly living alone are taking treatment in the public sector/NGO/trust/shops, homes or other places than male elderly living with family. A similar situation has been found in case of female elderly even with more gaps according to the living condition. 43 of female elderly who are living alone are taking treatment in the public sector/NGO/trust compared to 29% female elderly living with family.

<Table 7 about here>

Discussion

The present study shows the gender differential in living arrangement and its impact on health status and treatment seeking behaviour of elderly in India by exploring the second phase data from National Family Health Survey data (NFHS-2, 1998-99). The analysis present in this paper is based on 39,694 elderly aged 60+ living in different states of India which has been taken out from all India sample of 500,000 population. India, like many other developing countries in the world, is presently witnessing rapid ageing of its population. India has 8% of elderly population. Male elderly accounts for 8.2% whereas female elderly accounts for 7.8% of the total population. The states of Punjab have the highest percentage of elderly population followed by Kerala. Male elderly living alone accounts for 2% whereas female elderly living alone accounts for 5% of the total elderly population in India. It has been found that proportion female elderly living alone in India is significantly higher than male elderly. Nagaland has the highest percentage of elderly population living alone followed by Tamil Nadu. Some of the socio-demographic and economic factors which have a bearing on the living arrangements of older persons in India include age, gender, marital status and employment status. A majority of the elderly population belonged to age group 60-69 years. Elderly living alone were found comparatively less in the lower age group compared to elderly living with family which indicates that relatively more older person (70+) are living alone than with family. Mostly female elderly are living alone. Almost all the male elderly living alone are still working and that too for cash which shows the sad condition of elderly living alone in India. Older men in India have traditionally worked in agriculture, and many find it increasingly difficult to earn a living as Indian economies shift toward manufacturing and the service industries. With rapid technological change and expanding educational opportunities for the young, older workers are becoming less competitive in today's job market. Among Indian men in age group 60 and above, labor force participation is higher and is projected to decline much less—from 46% in 2000 to 41% in 2050. Older women in India are much less likely to work than older men.

A significant differential has been found in the health status of the elderly according to living condition which indicates lack of care and support towards elderly living alone that results them into the higher risk of infectious and communicable diseases. For elderly, health status can be a result rather than the cause of specific living arrangements. The health risk behaviour among elderly shows that, in most of the risk behaviours like drinking alcohol and smoking, elderly living alone are behind the elderly living with family. But other health risk factors related to environment and nutrition are found more among elderly living alone. Relatively more proportion of male elderly are found to suffer from asthma and TB than female elderly. However, living alone further worsen the health status of both male and female elderly.

Male elderly specifically those who are living alone significantly indulged more in perilous lifestyle such as drinking, smoking and chewing tobacco than female elderly. Also, female elderly living alone are found to be chewing tobacco more than female elderly living with family. The study shows that there exists a gender differential in the health status of the elderly and male elderly have worst health condition. It may be because of the fact that male elderly indulge in significantly high health risk behaviours such as drinking alcohol, smoking and chewing tobacco than female elderly. Further, both male and female elderly living alone have significantly more health problems, indulge in more risk behaviours and also have higher environmental and nutritional risks than male and female elderly living with family.

The present study shows that living arrangement makes a significant difference in the treatment seeking behaviour among the elderly. A higher proportion of elderly of either sex who are living alone are seeking more treatment from shop, home or other places than elderly living with family which makes them more vulnerable to diseases. It is a general practice in India that, weaker section of the society seeks treatment mostly from public sector/NGO/trusts, shops, homes and other places because of paucity of money. This finding also commensurate with finding from NFHS-2 for all India, which shows that use of health-care services, is strongly influenced by the standard of living of the household. As the standard of living increases, use of private sector services increases (IIPS and ORC Macro, 2000).

Conclusion and Policy Implications

Countries around the world are in the midst of demographic aging. While the pace of aging varies, all nations are, or soon will be, faced with important issues regarding the health of and health care provision for their expanding older populations. In particular, countries need to plan for the health needs of older women (Kinsella and Gist, 1998). Although the elderly are as diverse demographically, socially, and economically as the nonelderly, one notable difference between these broad groups is the relative number of men and women. While boys outnumber girls in all countries, gender differences in mortality eventually produce a changing sex balance within a population. By age 30 or 35, women start to outnumber men, and the absolute female advantage increases with age. Elderly women greatly outnumber elderly men in most nations, and therefore the

health and socio-economic problems of the elderly are, to a large extent, the problems of elderly women.

Today, India's elderly population is concentrated primarily in the younger segments of the old-age population group. Over time, however, the greatest increases in population will occur in the oldest age groups. This will happen as life expectancy increases and as large groups born during past periods of high fertility grow older. In India, only 14 % of the elderly population are now in the oldest age category, projected to increase to 22 % by 2050. In this perspective the present study has important policy implications. The population of older persons in India is rising significantly. The percentage of elderly who are living alone are also on the rise due to differential mortality in the later stage of life. Findings from the study shows elderly living alone are the most vulnerable group in their health status, health risk behaviour and also in environmental risk and nutritional risk. Our primary health care system is not at all geared to take care of aged population. Therefore there is an urgent need to improve our health care system to tackle the needs of growing number of elderly population in India.

The study comes out with an important policy implication that elderly living alone should be taken more care with strong public support system especially for those elderly who belongs to the weaker section of the society. Even after being much old, a majority of elderly are working in India and also for cash. Further, a majority of female elderly are widow and are living alone who are more vulnerable in the society. Thus, public support system for female widow elderly should be strengthened more realistically.
Traditionally, old people in India have been supported and cared for by their families, but due to urbanization and modernization family-support systems and family value system (such as care and respect of the old people in the family) are gradually eroding. Therefore private-sector or public sector institutions will have to come forward to meet the needs of tomorrow's elderly generations. The social security systems and health-care plans must be formulated and implemented realistically and sensibly over the next few years for the well-being of the older people in India.

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Table 1: Percentage of elderly population in the states of India by sex, 1998-99

India/States	Male	Female	Total
Punjab	11.4	10.8	11.1
Kerala	9.6	10.7	10.2
Himachal Pradesh	10.1	9.3	9.7
Goa	8.5	10.9	9.7
Tamil Nadu	9.4	9.4	9.4
Orissa	9.5	8.6	9.1
Karnataka	8.5	8.5	8.5
West Bengal	8.5	8.3	8.4
Haryana	8.5	8.0	8.3
Madhya Pradesh	8.4	7.9	8.1
Andhra Pradesh	8.6	7.6	8.1
Tripura	7.8	8.0	7.9
India	**8.2**	**7.8**	**8.0**
Uttar Pradesh	8.2	7.4	7.8
Maharashtra	7.3	8.2	7.7
Jammu & Kashmir	8.4	6.7	7.6
Gujarat	7.2	7.9	7.5
Rajasthan	7.4	7.1	7.3
Manipur	7.2	6.8	7.0
Mizoram	7.3	6.1	6.7
Delhi	6.8	6.5	6.6
Nagaland	7.4	5.8	6.6
Bihar	7.1	5.6	6.4
Sikkim	6.0	5.0	5.5
Meghalaya	6.1	4.9	5.5
Arunachal Pradesh	6.2	4.2	5.2
Assam	5.6	4.4	5.0

Note: The states has been ranked according to the percentage of total elderly Population

Table 2: Percentage elderly population living alone in the states of India by sex, 1998-99

India/States	Male	Female	Total
Nagaland	5.0	9.6	7.0
Tamil Nadu	2.5	11.3	6.9
Himachal Pradesh	3.6	5.3	4.4
Gujarat	2.8	5.8	4.3
Andhra Pradesh	1.9	6.9	4.2
Goa	2.6	5.4	4.2
Meghalaya	2.9	4.3	3.5
Arunachal Pradesh	4.3	2.1	3.4
Madhya Pradesh	2.5	4.3	3.3
West Bengal	2.5	4.2	3.3
Orissa	1.6	4.9	3.2
India	**1.7**	**4.5**	**3.0**
Karnataka	0.9	4.6	2.7
Tripura	1.2	4.0	2.6
Maharashtra	1.5	3.6	2.6
Punjab	1.9	3.2	2.5
Kerala	0.7	3.6	2.3
Uttar Pradesh	1.8	2.7	2.2
Rajasthan	1.1	3.1	2.1
Bihar	1.2	2.4	1.7
Manipur	0.6	2.8	1.7
Haryana	1.5	1.4	1.5
Mizoram	0.8	2.2	1.4
Sikkim	2.3	0.0	1.3
Jammu & Kashmir	1.2	1.4	1.3
Delhi	0.4	2.0	1.1
Assam	0.6	1.6	1.0

Note: The states has been ranked according to the percentage of total elderly population living alone

Table 3: Distribution of elderly according to background characteristics by living condition, India, 1998-99

Background characteristics	Living alone	Living with family	Total	Number
Age				
60-69	57.6	62.4	62.2	24706
70-79	32.4	27.4	27.6	10953
80 and above	9.9	10.2	10.2	4036
Sex				
Male	29.2	53.2	52.5	20848
Female	70.8	46.8	47.5	18846
Current marital status				
Never married	3.5	0.9	1.0	403
Married	6.9	63.7	62.0	24604
Widowed	86.0	34.9	36.5	14478
Divorced	0.9	0.1	0.2	64
Not living together	2.6	0.3	0.4	146
Type of place of residence				
Urban	22.2	24.2	24.2	9598
Rural	77.8	75.8	75.8	30096
Education				
Illiterate	76.0	64.9	65.2	25869
Literate, < middle school complete	16.9	23.2	23.0	9139
Up to high school	2.2	3.8	3.7	1486
High school and above	4.9	8.1	8.0	3169
Religion				
Hindu	83.4	82.5	82.5	32760
Muslim	8.2	10.7	10.6	4221
Christian	3.5	2.7	2.7	1084
Sikh	2.2	2.5	2.5	978
Others	2.8	1.6	1.6	652
Caste/tribe				
Scheduled caste	24.3	17.6	17.8	6775
Scheduled tribe	9.1	8.2	8.2	3108
Other backward class	34.0	34.3	34.3	13027
Others	32.7	39.9	39.7	15082
Household standard of living index				
Low	74.8	29.8	31.1	12226
Medium	20.4	46.6	45.8	17991
High	4.9	23.6	23.0	9043
Working status				
Yes	46.7	35.2	35.5	14095
No	53.3	64.8	64.5	25600
Work for salary				
Yes	96.6	91.7	91.9	12958
No	3.4	8.3	8.1	1137
Total percent	**100.0**	**100.0**	**100.0**	**-**
Total number of elderly	**1196**	**38498**	**39694**	**39694**

Table 4: Gender differential in the living arrangement of elderly by background characteristics, India, 1998-99

Background characteristics	Male			Female		
	Living alone	Living with family	Total	Living alone	Living with family	Total
Age						
60-69	54.7	60.2	60.1	58.8	64.8	64.6
70-79	35.2	29.6	29.7	31.3	25.0	25.3
80 and above	10.0	10.2	10.2	9.9	10.2	10.1
Current marital status						
Never married	10.0	1.2	1.3	0.8	0.7	0.7
Married	18.8	82.4	81.3	2.0	42.4	40.6
Widowed	65.0	16.2	17.0	94.8	56.2	58.0
Divorced	1.7	0.1	0.1	0.6	0.2	0.2
Not living together	4.6	0.2	0.3	1.8	0.4	0.5
Type of place of residence						
Urban	26.1	23.3	23.3	20.5	25.3	25.1
Rural	73.9	76.7	76.7	79.5	74.7	74.9
Education						
Illiterate	46.7	49.8	49.8	88.0	82.0	82.3
Literate, < middle school complete	36.1	31.4	31.5	9.0	13.9	13.7
Up to high school	6.6	5.6	5.6	0.4	1.7	1.7
High school and above	10.6	13.1	13.1	2.7	2.3	2.4
Religion						
Hindu	81.7	82.4	82.4	84.0	82.6	82.6
Muslim	8.0	10.7	10.7	8.3	10.7	10.6
Christian	3.7	2.7	2.7	3.5	2.7	2.8
Sikh	4.3	2.6	2.7	1.3	2.3	2.2
Others	2.3	1.5	1.5	2.9	1.7	1.8
Caste/tribe						
Scheduled caste	26.8	18.1	18.2	23.1	17.2	17.4
Scheduled tribe	8.3	8.4	8.4	9.4	7.9	8.0
Other backward class	27.4	34.4	34.3	36.7	34.2	34.3
Others	37.5	39.2	39.1	30.7	40.8	40.3
Household standard of living index						
Low	62.8	29.5	30.1	79.7	30.1	32.3
Medium	30.8	47.1	46.9	16.0	46.0	44.7
High	6.4	23.3	23.1	4.3	23.9	23.0
Working status						
Yes	61.3	55.1	55.2	40.7	12.4	13.7
No	38.7	44.9	44.8	59.3	87.6	86.3
Work for salary						
Yes	94.9	94.3	94.3	98.0	78.9	81.4
No	5.1	5.7	5.7	2.0	21.1	18.6
Total number of elderly	**349**	**20499**	**20848**	**847**	**18000**	**18847**

Table 5: Health status and health risk among elderly according to living arrangement, India, 1998-99

Health status	Living alone	Living with family	Total
Suffer from asthma***	14.5	10.3	10.4
Suffer from TB***	2.7	1.3	1.4
Received treatment for TB***	50.0	84.2	82.4
Suffer from malaria	10.2	4.0	4.2
Suffer from jaundice***	2.3	0.8	0.8
Health risk behaviour			
Chew tobacco	35.0	31.5	31.6
Drink alcohol	8.9	11.3	11.2
Smoke	16.6	22.9	22.7
Smoked regularly	4.5	6.2	6.2
Do not purify drinking water*	74.4	68.1	68.2
Use unclean fuel to cook[1]*	80.4	75.1	75.2
Use of salt*			
Refined salt	29.6	44.0	43.6
Coarse salt	70.4	56.0	56.4
Iodine content in salt*			
0 PPM (no iodine)	41.2	29.8	30.1
7 PPM	22.3	21.6	21.6
15 PPM	15.6	16.7	16.7
30 PPM	20.9	32.0	31.6
Number of elderly	**1196**	**38486**	**39682**

[1]*Clean fuel includes mainly LPG and Electricity and Biogas and unclean fuel includes wood, crop residues, cow dung cakes, coal/lignite/charcoal, kerosene and others*
*** p < 0.01

Table 6: Gender differential in the health status and health risk among elderly according to living arrangement, India, 1998-99

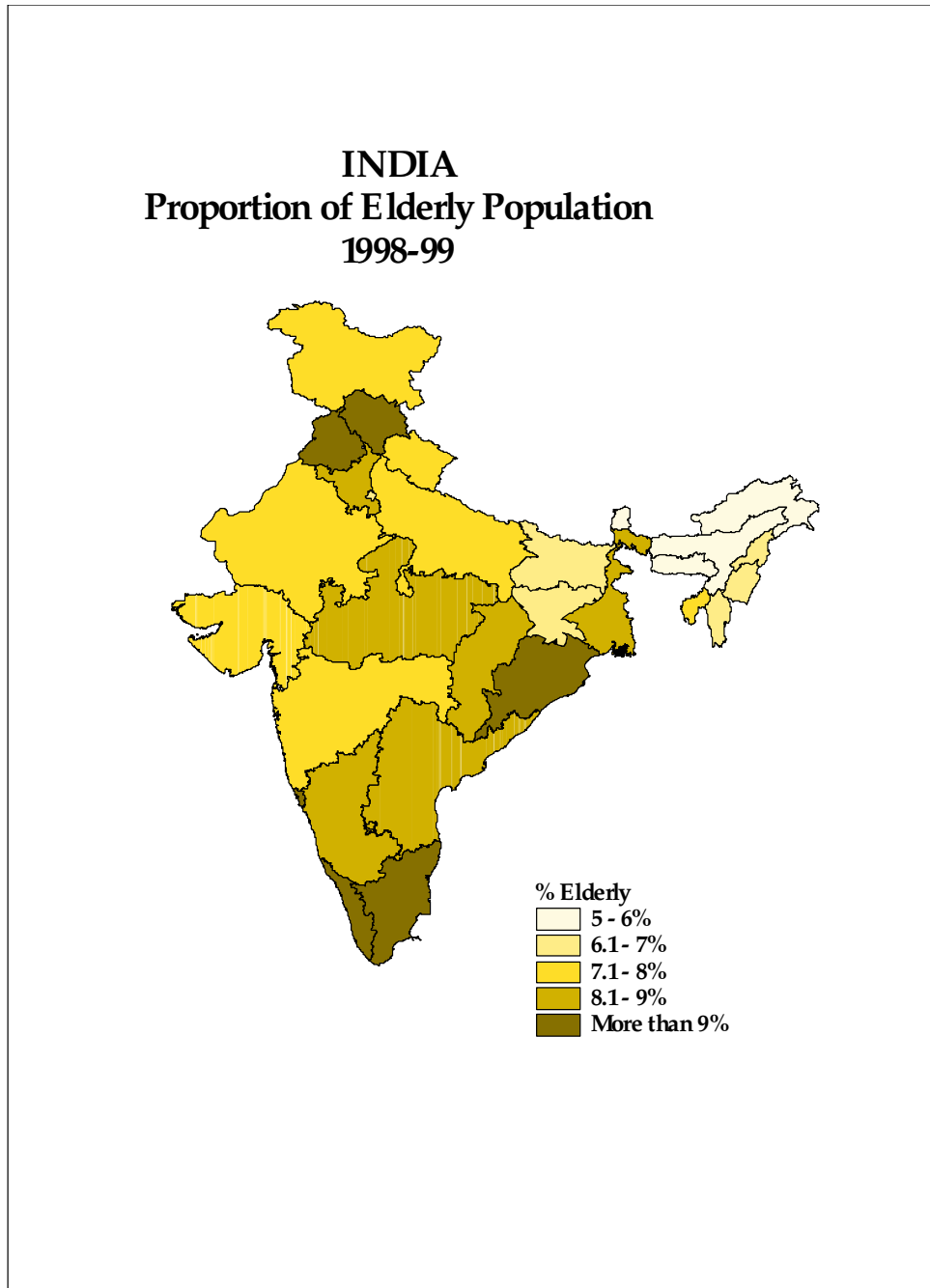| Health status/ risk	Male			Female		
	Living alone	Living with family	Total	Living alone	Living with family	Total
Health status						
Suffer from asthma***	**17.5**	**12.0**	**12.1**	13.3	8.3	8.6
Suffer from TB***	1.7	1.8	1.8	**3.1**	**0.9**	**1.0**
Received treatment for TB***	100.0	85.8	86.1	**36.4**	**80.0**	**74.3**
Suffer from malaria	6.0	4.1	4.1	**11.9**	**3.8**	**4.2**
Suffer from jaundice***	**2.6**	**0.9**	**1.0**	2.2	0.7	0.7
Health risk behaviour						
Chew tobacco***	44.4	37.4	37.5	**31.1**	**24.7**	**25.0**
Drink alcohol***	20.6	18.6	18.6	4.0	3.0	3.1
Smoke***	42.4	38.2	38.3	5.9	5.3	5.3
Smoked regularly***	18.9	13.6	13.7	0.9	0.7	0.7
Do not purify drinking water	**80.5**	**69.1**	**69.3**	**71.8**	**66.8**	**67.1**
Use unclean fuel to cook	**72.7**	**76.1**	**76.0**	**83.6**	**73.9**	**74.4**
Use of salt						
Refined salt	**35.9**	**43.5**	**43.4**	**26.9**	**44.7**	**43.9**
Coarse salt	**64.1**	**56.5**	**56.6**	**73.1**	**55.3**	**56.1**
Iodine content in salt						
0 PPM (no iodine)	**33.5**	**29.8**	**29.9**	**44.4**	**29.7**	**30.3**
7 PPM	**26.3**	**21.9**	**22.0**	**20.7**	**21.2**	**21.2**
15 PPM	**17.8**	**16.6**	**16.6**	**14.7**	**16.8**	**16.7**
30 PPM	**22.4**	**31.7**	**31.5**	**20.3**	**32.3**	**31.7**
Number of elderly	349	20491	20840	847	17989	18836

*** p <0.01(shows level of significance for gender differential (male total and female total)

Note: Figures shown in bold refers significant at 95% level of significant with in the group (male or female).

Table 7: Gender differential in the treatment seeking behaviour among elderly according to living arrangement, India, 1998-99

Seeks treatment from	Male			Number
	Living alone	Living with family	Total	
Public sector/NGO/Trust	33.2	28.8	28.9	5949
Private sector	60.1	68.7	68.6	14126
Shop	2.0	0.6	0.6	129
Home	2.3	0.4	0.4	82
Others	2.3	1.5	1.5	318
Number of elderly	343	20261	20604	20604
	Female			
	Living alone	Living with family	Total	
Public sector/NGO/Trust	42.6	29.0	29.6	5509
Private sector	53.3	68.7	68.1	12679
Shop	1.4	0.5	0.5	97
Home	1.3	0.3	0.4	69
Others	1.3	1.5	1.5	277
Number of elderly	836	17795	18631	18631
	Total			
	Living alone	Living with family	Total	
Public sector/NGO/Trust	39.9	28.9	29.2	11459
Private sector	55.3	68.7	68.3	26805
Shop	1.6	0.5	0.6	226
Home	1.6	0.3	0.4	151
Others	1.6	1.5	1.5	595
Number of elderly	1180	38056	39236	39236

INDIA
Proportion of Elderly Population
1998-99

% Elderly
5 - 6%
6.1 - 7%
7.1 - 8%
8.1 - 9%
More than 9%

Map 2: Percentage of Elderly Population Living Alone, India

**INDIA
Percentage of Elderly Living Alone
1998-99**

% Elderly living alone
0 - 2%
2.1 - 3%
3.1 - 4%
More than 4%