

CHAPTER VIII

HEALTH, FUNCTIONALITY AND LIVING ARRANGEMENTS OF THE ELDERLY

Introduction:

Health problems increase with age, especially at advanced age. Ill-health becomes a major hindrance for the well-being of the elderly. Health is the single most important determinant of the quality of life among them (UNFPA, 2012) and they are more likely to have major health concerns. In fact, the Madrid International Plan of Action on Aging 2002 prioritises 'Advancing Health' and 'Well-being' into old age as a central theme (MIPAA, 2002). In India, an analysis of morbidity patterns by age from NSSO data clearly indicates that the elderly face more burden of ailments (which the NSSO defines as illness, sickness, injury, and poisoning) compared with other age groups across genders and residential locations (NSSO, 2006). In a developing country like India, elderly health takes on an extra dimension as most of the aged have survived several bouts of ill-health during periods of mass epidemic and communicable diseases (Chakraborti, 2004). Multiple chronic diseases afflict them: chronic bronchitis, anaemia, high blood pressure, chest pain, kidney problems, digestive disorders, vision problems, diabetes, rheumatism and depression (Angra et al., 1997; Kumari, 2010; Raju, 2000; Roy, 1994; Shah and Prabhakar, 1997). Under-nutrition is also common in the elderly group (Srivastava et al., 1996). A sizeable number of them have remained largely deprived because of their inadequate past and cumulative burden of poor socio-economic attributes, chronic ailments and lack of functional autonomy (Alam and Mukherjee, 2005; Albert, 2009; Alam and Nizamuddin, 2005; Gupta and Sankar, 2002; Rajan, 2007). In India, research on elderly health has mainly focused on the diseases and accompanying risk factors.

Although disability is not an inevitable consequence of human aging, the risks for both chronic disease and disability are highly age-related (Manton and Stallard, 1994). Disability rate increases with an increase in age which leads to the very high prevalence of disability among the elderly. The highest disability rate (7.7 per cent) is observed among persons aged 80 years and above and lowest (1.7 per cent) among the age group 0-19 years in India (Census, 2001). There are generally four forms of physical disability:

visual, hearing, speech and locomotor. Disability in the old age is a double disadvantage. The disabled elderly population is in great need of various types of help for its existence. As such, for the planning for empowered and productive future for the elderly, it is essential to have information about the number and proportion of disabled persons and the types of their disabilities.

Almost four decades ago the World Health Organization (WHO, 1977) described the elderly living alone as an 'at risk' group. However, studies of elderly health, physical performance and disability are scanty and limited to understanding the psycho-social or socio-behavioural risk factors in India (Ushasree, 2000; Bagchi, 2000; Subramanian et al., 1999; Yadava et al., 1996; Alam and Mukherjee, 2005).

Living arrangements are an important component of the overall well-being of the elderly. Some of the studies in the LDCs have found positive association between socio-economic status, living arrangements and health of the elderly (Albert and Cattell, 1994; Ross and Wu, 1996; Knodel and Debavalya, 1997; Zimmer and Amornsirisomboon, 2001; Mba, 2005; Gu et al., 1997; Chen and Short, 2008; Song et al., 2008; Wu and Schimmele, 2008; Zimmer, 2008; Li et al., 2009). In Thailand, there is a widespread expectation that the elderly will be taken care of by their children and that at least one child will co-reside with them (Cowgill, 1972; Knodel et al., 1984; Pramualratna, 1990; Tuchrello, 1989). It was found that survival of the elderly is increased if they live with spouse or sons and daughters (Mostafa and Ginneken, 2000). National Family Health Survey -2 (1998-99), gathered information on elderly health outcomes, and suggests that the living arrangements of the elderly are strongly associated with adverse health outcomes such as asthma, tuberculosis, malaria and jaundice (Sutapa Agrawal, 2012). The effect of living arrangements is independent of age, sex, education, living standard, and other environmental and behavioural factors. Elderly living alone are significantly more likely to suffer from these chronic as well as acute ailments than elderly living with their families. Some micro level ageing studies in India have found living arrangements, and care and support for older adults to be an important determinant of their health status (Gupta and Sankar, 2002; Chaudhuri and Roy, 2007; Sheela and Jayamala, 2008; Lena et al., 2009). Not only physical but even perceived health is an important predictor for their living happily (Kivinen et al., 1998). Although social support has a major impact on the health and well-being of the elderly, it is less clear how this effect might operate (George,

1989). A number of studies have found that self-rated general health among the elderly is a valid measure of their health status (Krause and Jay, 1994). One of the benefits of co-residential living in India includes elder health, particularly in terms of the relationship between co-residence and self-rated health, chronic, and short-term morbidity (Sudha et al., 2006; Jadhav, 2011). While self-rated health status is not an ideal indicator of health conditions, it can be shown to be surprisingly accurate and a good predictor of subsequent ill-health and mortality (Idler and Kasl, 1991; Idler and Benyamini, 1997; Mare and Palloni, 1988, Hirve, 2013).

Living alone in later life is often seen as an undesirable state and as a potential health risks (Kharicha et al., 2007) and needs specific attention (Iliffe et al., 1992). Most of the studies conducted in DCs, show that living alone may be associated with various health-related disadvantages and undesirable health events among the elderly (Dean et al., 1992) such as chronic illnesses (Murphy, 1997), higher mortality risk (Welin et al., 1985) and higher risk of functional decline (Mor et al., 1989; Sarwari et al., 1998). Various studies in Asian and Western countries have reported that the elderly living alone have a greater prevalence of dietary inadequacy (Davis et al., 1990) and higher rates of poor health (Murphy, 1997). Hence, they are more likely to be depressed (Dean et al., 1992; Mui, 1998; Chou and Chi, 2000), report poorer mental health and quality of life (Chou and Chi, 2000; Gee, 2000; Iwasa et al., 2006), report functional impairment (Mor, 1989; Sarwari, 1998), poor diet, excessive smoking risk, hazardous alcohol use, risk of social isolation, worse memory and mood, lower physical activity, and chronic conditions such as arthritis, and/or rheumatism, glaucoma and cataract, than those living with spouse or partners (Kharicha et al., 2007).

The above studies suggest that there appears to be a complex dynamic relationship between living arrangements and health status which differs by gender, socio-economic status, morbidity patterns, types of living arrangements, etc. However, more detailed studies focusing only on living arrangements and how they affect health status measures have remained neglected. In this context, the present study collected perceptions of the elderly about the status of their current health, current health compared with the previous year and compared with people of the same age. But the understanding about whether living longer means living better can be understood from the concept of healthy life expectancy (also called active life expectancy or disability-free life expectancy). This

refers to the average number of years that a person may expect to be free of limitation of function due to one or more chronic disease conditions which normally focuses on the ADLs or IADLs (Crimmins et al., 1996).

It is now important to see what do ADL and IADL mean. Hence, further the information for assessing the status of activities of daily living (ADL), i.e., the basic tasks of everyday life such as feeding, bathing, dressing, toileting, mobility, assistance required for instrumental activities of daily living (IADL) i.e., ability to telephone, go shopping, food preparation, housekeeping, doing laundry, travelling, responsibility for own medication and ability to handle finances was collected along with peoples' habits such as tobacco chewing, smoking and alcohol consumption.

Personal care is assistance that compensates for chronic limitations in basic self-care activities, such as shopping, meal preparation, eating, bathing or dressing (Soldo et al., 1989). Hence, we investigate health status (short term morbidity-diarrhoea, cough, fever, respiratory infections etc., and major morbidity-cancer, tuberculosis, heart disease, diabetes, long term asthma, cataract, and blood pressure) by self reported health of the elderly as well as seeking behaviour of elderly with ADL and IADL. Further, the present study tried to identify the more influential factors that are affecting living arrangements and health of the elderly in Pune. All these details are expected to give an idea about the old age health which is important from angle of the quality of life.

In this chapter we discuss the state of elderly health, subjective well-being with their self-rated health and their functional health (by ADL and IADL) status. In addition we discuss prevalence of loco-motor disability. The self assessed health condition of the elderly who have suffered with single and multiple diseases have been reported here by gender. Habits like smoking, tobacco chewing (or mishri-tooth powder) and alcohol consumption are also covered. We further explore the relationship between living arrangements and elderly health controlling for known confounding factors such as age, gender, SLI, location of residence, education and income source. Most studies have found that caste forms an important dimension of inequality in India. However, we do not include it in confounder as we have more than 80 per cent Hindus among our respondents.

Current and relative general health status - Self assessments by elderly

Self-rated health is a widely used measure in population health surveys (Burstrom, 2012). According to Fillenbaum, self perceived health status may be a better indicator of potential service use than of actual health condition (Fillenbaum, 1984). To understand the health status respondents were asked three questions to make assessments about their ‘current’ (that is, at the time of the survey) and ‘relative’ (that is, as compared with the last year) health conditions. The question to respondents commonly read: ‘How would you describe your health in general?’ with 5 point scale options ranging from poor to excellent. In addition, they were asked to rate their health in comparison with the previous year as well as in comparison with other people of the same age. The last option in both the questions indicated the poorest health condition.

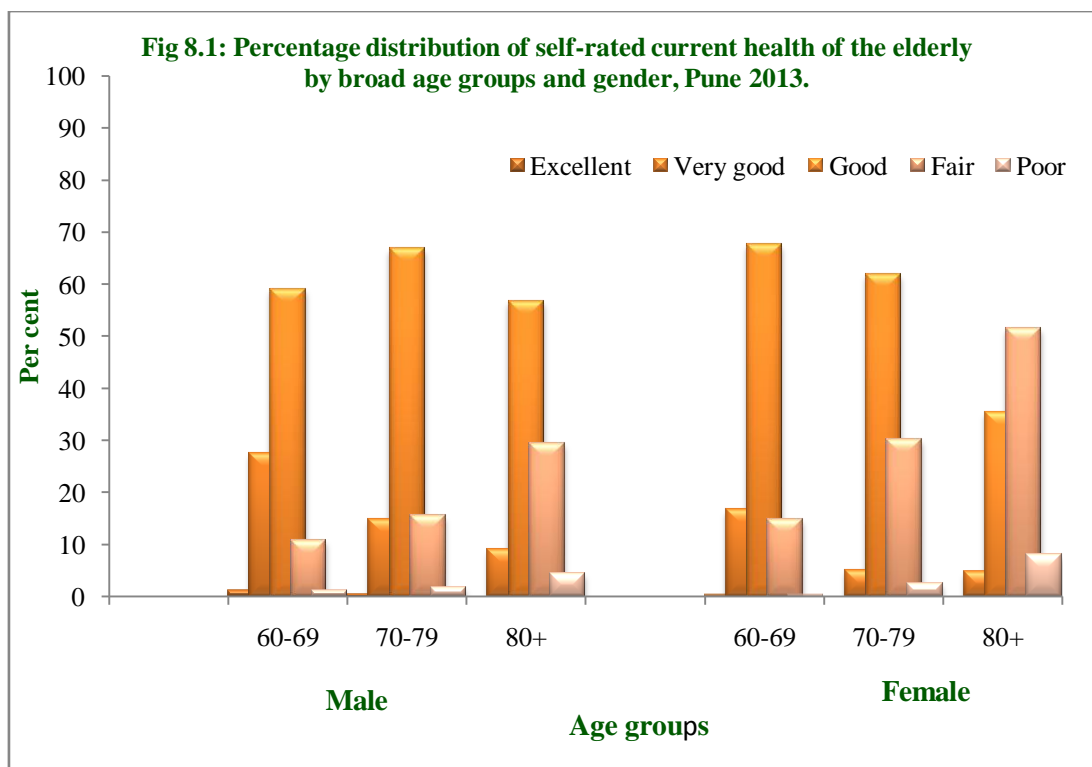
Self-rated health	Males	Females	Total
Current health			
Excellent	0.9	0.2	0.5
Very good	21.3	11.7	16.2
Good	61.6	62.0	61.8
Fair	14.4	24.2	19.6
Poor	1.8	2.0	1.9
Total	100.0	100.0	100.0
Current health compared with last year			
Better	3.1	2.6	2.8
Same	80.7	77.0	78.7
Worse	12.6	18.0	15.5
Don’t know	3.1	2.0	2.5
No response	0.4	0.4	0.4
Total	100.0	100.0	100.0
Current health compared with elderly of same age			
Better	11.0	8.9	9.9
Same	56.2	47.9	51.8
Worse	5.8	8.7	7.4
Don’t know	25.2	30.5	28.0
No response	1.8	4.0	2.9
Total	100.0	100.0	100.0
Number of elderly	445	505	950

Table 8.1 gives an idea about the reported health condition of the elderly according to gender. It suggests that only 62 per cent of the elderly reported their current health condition as good. Thus, nearly two out of every five elderly people consider themselves to be health-deficient or not enjoying good health. The table also clearly

exhibits a gender gap in the rated current health conditions of the elderly respondents. It shows that a higher proportion of the elderly women consider themselves as in 'fair or poor' health conditions (26.2%) than their male counterparts (16.2%).

Analysis of relative health shows that about 79 per cent elderly reported that their health has remained same as compared with the last year, whereas one out of six elderly male reported that his health worsened over the last one year. This is also true among the women elderly. The number of elderly respondents suffering deterioration in health conditions over the past one year is considerably large in numbers. If this trend continues in the future, then a significant proportion of the elderly will fall in the category below or low physical threshold level than required for functional capability. A similar pattern existed for elderly assessing self-rated health in comparison with people of the same age. About 52 per cent elderly reported that their current health is like same in comparison with their peers. And 10 per cent elderly reported better current health and 7 per cent reported that their health is worse compared with that of their peers of the same age. Unexpectedly, 28 per cent elderly (25% men and 31% women) reported that they don't know or can't say anything about the comparison of their health with the other elderly of their age. This percentage is more for elderly women. Either they can't compare or they don't go out often to their neighbourhood/surrounding area, making it difficult to compare their health with others. This shows that a majority of them are socially detached. The self-rated health of the elderly of Pune has been poor and remained the same or even deteriorated compared with their peers.

The perception about self-rated health varies according to the background characteristics such as age, gender, marital status, education and living arrangements. The age-sex distribution of the self-rated health conditions of the elderly is given in Fig 8.1. It indicates that the problem increases further with the oldest-old. With advancing age, the proportion of the elderly men and women who perceived their health as fair or poor increases from 11 to 15 per cent in the age group of 60 - 69 years to 30 per cent for men and 52 per cent for women in the age group of 80 years and above.

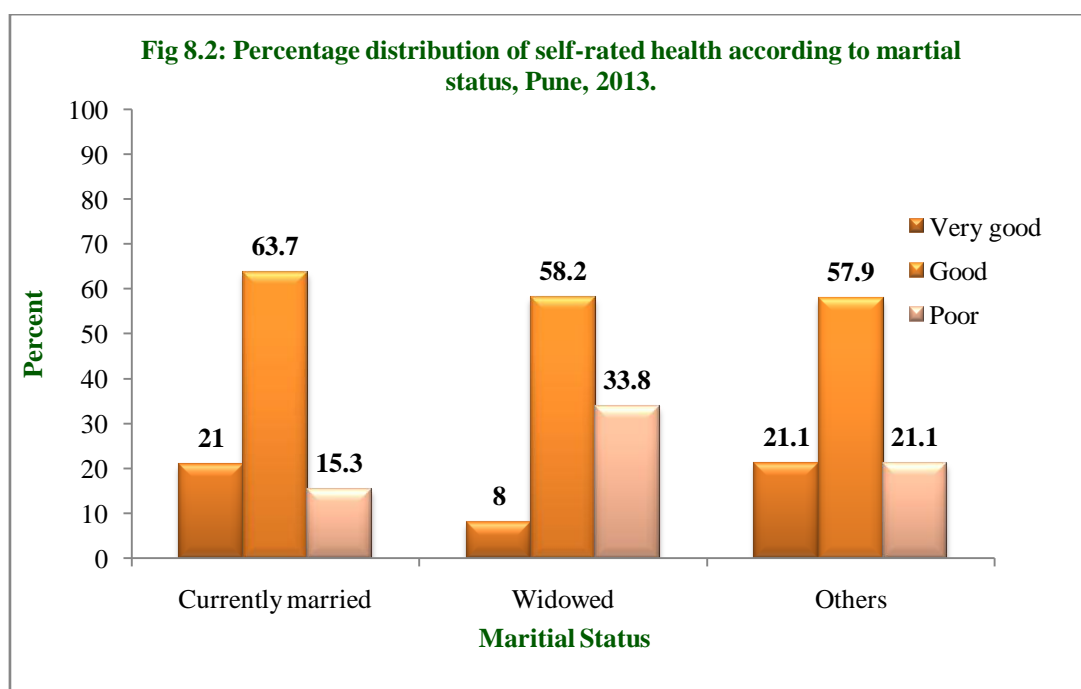


Higher proportion of widowed (34%) and other (separated/divorced/never married) elderly (21%) reported poor health compared with the currently married elderly (15%). However, proportion of the elderly reporting good health is much higher among those currently married (Fig 8.2). Moreover, the elderly women are more likely to report poor general health than the elderly men. There are a number of possible explanations for why the presence of a spouse may be associated with better health for the elderly women. The first and most often cited is the so-called “protective effect”, that is having a spouse is deemed to directly cause an improvement in one’s health which is mediated through a variety of proximate factors such as increased access to financial resources, improved care giving, emotional buffering, better diet and less risk-taking behaviour (Bowling, 1987; Ross et al., 1990). The second explanation is a “selection effect”, whereby one’s marital status per se does not have any causative impact on one’s health (Goldman, 1993; Rahman et al., 1994; Goldman et al., 1995).

Table 8.2 reveals that 19 per cent elderly lives alone and 17 per cent elderly living with spouse reported poor health as compared with those living with children/grandchildren. Also 34 per cent of the elderly living without spouse but with children or with other relatives reported poor health. A similar pattern is observed with

respect to relative health, i.e., health compared with the last year and compared with that of their peers. Hence, there seems to be an association between the elderly self-rated health and living arrangements. The elderly living alone or only with spouse or without spouse but with other relatives have poor or fair self-rated health and worse relative health compared with the elderly living with spouse, children and grandchildren.

Table 8.2: Percentage distribution of elderly by self-rated health status according to living arrangements, Pune, 2013.						
Self-rated current health	Living arrangements					Number of elderly
	Alone	With spouse	With spouse, children and grandchildren	With children and grandchildren	With others	
Current health						
Very good	27.9	16.7	21.8	7.7	11.1	159
Good	53.5	66.7	64.0	58.0	55.6	587
Poor /Fair	18.6	16.7	14.2	34.3	33.3	204
Compared with last year						
Better	4.7	5.1	2.9	1.5	2.2	27
Same	83.7	76.1	83.1	75.2	60.0	748
Worse	11.6	17.4	10.4	20.4	33.3	147
Don't know/No- response	0	0.7	3.5	2.9	4.4	28
Compared with same age elderly						
Better	14.0	10.1	10.4	8.4	8.9	94
Same	53.5	51.4	59.3	42.7	31.1	492
Worse	4.7	8.0	4.2	42.9	17.8	70
Don't know/No- response	27.9	30.4	26.0	38.0	42.2	294
Total	100.0	100.0	100.0	100.0	100.0	
Number of elderly	43	138	450	274	45	950



Disability and disease

Data on ailments and disabilities included the following: visual, hearing, speech, loco-motor and mental or memory loss related disabilities; physical damages of all types as a result of accidents or injuries such as any kind of fractures and injuries due to fall or paralysis; and all forms of communicable diseases (Whooping cough, TB etc) and diseases related to lifestyle ranging from diabetes, cardiac problem, abnormal blood pressure, renal, respiratory infections (cough and acute bronchitis, acute respiratory infection), all forms of cancer, joint related diseases, dental loss, osteoporosis, etc.

Table 8.3 provides information on disability, type of disability and diseases the elderly suffered during the last six months. At the time of the survey, two elderly were bedridden and one was handicapped from birth and two elderly had only one eye. Within the three age groups of elderly persons of age 60 years and above the disability increases with age. The highest disability rate (7.74 per cent) is observed for persons aged 80 years and above. Within the three age groups of elderly persons, the disability increases with age. Males have reported disability rate of 3.7 per cent and females 3 per cent for the age group of 60-69 years. There are no differences with respect to the extent of disability among male and female elderly. Both groups have shown similar disability rates.

The most overwhelming disability is in seeing. More than one third of the disabled persons reported it. Elderly are more prone to eye impairment. About 35 per cent of female elderly reported poor vision, cataract or eye impairment as against 34 per cent of elderly males. Today's elderly persons are the survivors of the period when vitamin A was not commonly consumed nor were the parents educated about the eye care of these children. Small-pox was not eradicated and that could have caused blindness. In recent times removal of cataract and fixing of lenses reduces the prevalence of blindness among the new entrants in old age groups (Kanitkar and Shukla, 2010). Next to disability in seeing, is the disability in movement, 43 per cent elderly suffers from joint pain, 24 per cent from back pain/slip disc and 12 per cent from Osteoporosis. Females are more likely to report disability in movement than men. Disability in hearing or hearing loss is reported by 24 per cent elderly. Apart from disabilities, life style-related diseases like blood pressure (44%) and diabetes (24%) are reported by the elderly. Blood pressure is reported more among the elderly females and diabetes more by elderly males. Also dental

loss is found more in elderly females (40.8%) than in elderly males (38%). About 9 per cent elderly reported cardiac problems. Of them 12 per cent are elderly males and 6 per cent are elderly females. Neurological problems like dementia, alzheimer, loss of memory etc., are reported by 20 per cent of the elderly. Neurological problems are more in elderly females (24%) than elderly males (16%).

The distribution of ailments amongst elderly females shows differences from elderly males. About 66 per cent elderly women and 63 per cent elderly males have more than three illnesses/diseases. Ailing elderly females are relatively more likely to suffer from eye problems, joints-related diseases and infections. They are also somewhat more susceptible to lifestyle and age-related disorders like blood pressure. However elderly males are more susceptible to diabetes mellitus and heart diseases.

Risky health behaviour such as chewing tobacco/gutkha, application of mishri (tooth powder), smoking and alcohol consumption have a direct link with ill-health. Table 8.3 shows that of all the respondents, 37.5 per cent males and 25.5 per cent females have some type of addiction. About half of them chew tobacco, 21 per cent smoke Bidi/cigarettes and 18 per cent consume alcohol.

Table 8.3: Percentage distribution of elderly by disability and illness according to sex, Pune, 2013.			
Illness*	Males	Females	Total
Disability			
Poor vision/ cataract/other eye impairment	33.9	35.2	34.6
Loss of hearing	25.6	22.2	23.8
Speech impairment	2.0	1.6	1.8
Injury-related disability	2.2	1.4	1.8
Any kind of fracture (in last 1 year)	7.7	8.5	8.1
Injury due to fall (in last 1 year)	8.5	6.1	7.3
Accidental injury (in last 1 year)	4.7	3.2	3.9
Paralysis	4.7	2.4	3.6
Respiratory infections			
Asthma/Lung or respiratory problem	4.9	6.3	5.7
Tuberculosis/other chronic fever	0.2	1.0	0.6
Water- borne diseases			
Diarrhoea, Gastroenteritis, Dysentery	4.7	5.2	4.9
Lifestyle-related diseases			
Heart problem, chest pain or cardiac problem	11.9	5.9	8.7
Blood pressure	42.0	46.5	44.4
Diabetes	25.8	23.0	24.3
Cancer (any form)	0.9	2.6	1.8
Renal or urinary problem	5.7	2.4	4.1
Orthopaedic diseases			
Arthritis/Joint pain	35.3	49.9	43.1
Back pain or slip disc	20.2	26.7	23.7
Osteoporosis	10.1	13.1	11.7
Dental or loss of natural teeth	37.5	40.8	39.3
Neurological problems			
Mental problem or depression	1.3	0.2	0.7
Dementia, Alzheimer or loss of memory	16.4	23.6	20.2
Others			
Skin diseases	2.2	1.8	1.9
Piles	1.6	1.4	1.5
Frailty or general weakness	29.7	39.8	35.1
Hysterectomy (if female)	--	3.8	3.8
Prostate or hernia (if male)	2.0	--	2.0
Others (Acne, swelling, fit, acidity, sleep apnoea, water in knee, back, etc.)	1.2	0.2	0.7
Number of diseases/illnesses			
At least one	21.1	18.9	19.9
Any two	16.1	15.2	15.6
Two or more	62.8	65.9	64.5
Number of respondents	388	455	839
Habits			
Addiction	37.5	25.5	31.2
Number of respondents	505	450	950
Type of habits			
Tobacco, Gutkha or Mishri	54.3	45.7	50.0
Bidi or Cigarette smoking	21.0	0	21.0
Alcohol	18.0	0	18.0
Number of respondents	167	129	296
Note: * Multiple responses, total will not add to 100			

Elderly with single and multiple diseases

The elderly are classified into ‘some disability or disease’ and ‘no disability or disease’ categories. The elderly with some disability or disease are further distributed into ‘single’ and ‘multiple’ disability or disease. Table 8.4 reveals that the share of the aged from the oldest-old age group, and female elderly (especially widows suffering from single or multiple diseases) is markedly higher than those from the group with no disability or disease. The age-sex distribution shows that the elderly women are more morbid (73%) than males (68%). It confirms the finding mentioned earlier in self-rated health suggesting a stronger gender dimension of ageing with a higher proportion of women with poor health conditions. The percentage of oldest-old elderly suffering either from single or multiple diseases is higher which shows that physical age is an important determinant of diseases in later life.

Background characteristic	Number of disability/disease				Number of elderly
	No	Single	Multiple	Total	
Age (years)					
60-69	14.8	19.8	65.4	100.0	535
70-79	8.7	15.5	75.7	100.0	309
80+	4.7	12.3	83.0	100.0	106
Sex					
Men	13.7	18.2	68.1	100.0	445
Women	9.9	17.0	73.1	100.0	505
Marital status					
Married	13.2	19.0	67.7	100.0	620
Widowed	8.4	14.5	77.2	100.0	311
Never married/divorced/separated	15.8	21.1	63.2	100.0	19
Headship					
Yes	12.8	19.4	67.9	100.0	563
No	10.1	15.0	74.9	100.0	387
Education*					
No education/Illiterate	7.4	14.8	77.8	100.0	270
1-4 years complete-Primary	6.3	15.2	78.5	100.0	79
5-10 th Std	11.3	15.0	73.7	100.0	266
11-SY-Collage	13.6	18.3	68.0	100.0	169
Graduate and above	20.2	27.0	52.8	100.0	163

Table 8.4 continue: Percentage distribution of elderly by number of diseases according to selected background characteristics, Pune, 2013.					
Background characteristic	Number of disability/disease				Number of elderly
	No	Single	Multiple	Total	
Religion					
Hindu	12.1	18.3	69.9	100.0	785
Other	9.3	13.7	77.0	100.0	161
Caste/Tribe					
SC	12.2	24.4	63.4	100.0	82
ST	5.6	33.3	61.1	100.0	18
OBC	10.6	16.9	72.5	100.0	236
Others	13.2	17.3	69.6	100.0	539
Residence					
Non-slum	12.9	18.4	68.8	100.0	708
Slum	8.3	15.3	76.4	100.0	242
Standard of living index (SLI)					
Low	13.0	13.4	73.6	100.0	246
Medium	11.2	18.5	70.3	100.0	303
High	11.2	19.5	69.3	100.0	401
Living arrangements					
Living alone	14.0	20.9	65.1	100.0	43
Living with spouse	8.7	16.7	74.6	100.0	138
Living with spouse, children & grandchildren	14.2	20.0	65.8	100.0	450
Living with others	9.1	14.1	76.8	100.0	319
Currently working					
Yes	16.3	19.9	63.9	100.0	166
No	10.1	15.9	74.0	100.0	496
Employment status					
Economically active	16.3	21.5	62.2	100.0	209
Non-active	10.4	16.5	73.1	100.0	741
Economic dependence					
Not depend	15.8	23.7	60.4	100.0	278
Partially dependent	13.0	14.1	72.9	100.0	177
Fully dependent	8.9	15.4	75.8	100.0	495
Number of respondents	111	167	672	--	950
%	11.7	17.6	70.7	100.0	

Note: * Three elderly with no formal education.

Determinants of self-rated health

To find out the determinants of self-rated poor health among the elderly, the logistic regression analysis is done. As a dependent variable 'self-rated health' is dichotomous, binary logistic regression has been used to see the adjusted effect of elderly living arrangements and other factors on the elderly self-rated health status. For health

status in terms of self-rated health, the dependent variable is coded as 1 = poor (i.e., poor or fair health); and 0 = otherwise (i.e., excellent or very good and good health). Results are presented in the form of odds ratios (ORs) with 95 per cent confidence intervals (95 % CI).

As discussed previously, age and gender are two important variables. In addition, education is an important factor that may affect the ability to control disease and indirectly health. Headship, employment benefit and economic dependency of the elderly will affect health directly as well as indirectly via the ability to seek care and treatment. Separate room is important for health and hygiene points of view and so has been added in the model. We also considered whether the elderly getting money as and when required is important to seek treatment for health. In addition, the elderly assets and savings may determine to what extent he/she will be looked after. Thus, whether or not the elderly owns property has also been included as an independent variable. Along with all these independent variables, the addiction which directly affects health status is included.

A variable that seems to be a key to many of the subsequent results is the living arrangements of the elderly. The questionnaire asked whether the elderly is living alone; with spouse only; with spouse, children and grandchildren; without spouse but with children and grandchildren; and living with others. The dummy variables for living alone; living with spouse only; living with family (spouse and children) and living with others (i.e., with children and grandchildren or living with relatives) is included in the model. For education illiterate, upto 10th std education, and collage and above as a dummy variable is included. The dummy variable for employment or work benefit is also used for the elderly getting either pension or retirement benefit (fund and gratuity); or currently earning through family business; getting employment benefit from both pension and retirement; and not receiving any employment benefit. Based on the number of illness/diseases the elderly faced within the last six months prior to the survey which led them to rate their current health status, a dummy variable as no illness, at least one illness and more than one illnesses is included in the model along with the standard of living as high, low and medium. In addition, marital status (currently married, widowed and others category including separated, never married) is included as a separate variable in a different version of the model (Model 2) to avoid potential multi-colinearity with the

living arrangements variable. The two models estimated are reported as Model 1 and Model 2 in Table 8.5.

The logistic regression analysis reveals that (Table 8.5), self-rated fair/poor health status increases as people became older. Elderly without any formal education were significantly more likely to self-rate their health status as poor compared with their more educated contemporaries. The elderly living without spouse but with children and other relatives are more likely to rate poor health status compared with those living with spouse, children and grandchildren. The next variant confirms that the elderly with no employment benefit (no pension or retirement benefit, i.e., indirectly no source of self income) have a higher probability of rating poor health which also reflects in economic dependency and getting money as and when required. There is association between habits (tobacco, smoking and alcohol drinking) and health status. In Model 2, compared with currently married elderly, more widowed elderly rated poor health. Gender, location of residence and standard of living index did not appear to influence self-rated health. Even if we add caste or religion in both the Models the result remains the same.

Functional assessment of elderly with activities of daily living (ADL) and instrumental activities of daily living (IADL)

The ability to perform activities related to self-care, maintenance, etc., are important aspects of functionality. The revised World Health Organisation's (WHO) classification of functioning focuses on functioning as components of health (WHO, 2001). The study collected the information on the ADL and IADL which includes the activities of personal care, and domestic and community activities respectively. The percentage of elderly having limitation in performing activities also gives us an idea about the extent of support and family care required by those who need help in performing a particular activity.

Table 8.6 shows the functionality with ADL and IADL among the elderly males and females. The study assesses the functionality based on the level of independence to carry out the various activities. It shows that around one per cent elderly are unable to perform ADLs and need full assistance. Around 10 per cent elderly (9.5% males and 10.7% female) need partial or full assistance in walking activities, and 6% each in getting

Characteristics	Model 1			Model 2		
	OR	95% CI	p-value	OR	95% CI	p-value
Age (years)						
60-69	1.00			1.00		
70-79	1.85	(1.247, 2.755)	0.002	1.87	(1.256, 2.781)	0.002
80+	5.26	(3.121, 8.888)	0.0001	5.41	(3.180, 9.191)	0.0001
Sex						
Male	1.00			1.00		
Female	1.03	(0.880, 1.043)	0.880	1.04	(0.591, 1.833)	0.890
Location of residence						
Non-slum	1.00			1.00		
Slum	1.01	(0.650, 1.548)	0.998	0.96	(0.625, 1.476)	0.855
Education						
College and above	1.00			1.00		
Illiterate	1.79	(0.991, 3.267)	0.051	1.79	(0.987, 3.270)	0.055
Upto 10 th Std	1.35	(0.824, 2.225)	0.231	1.33	(0.815, 2.199)	0.250
Marital status						
Currently married				1.00		
Widows				1.62	(1.008, 2.609)	0.046
Others				2.98	0.583, 6.744)	0.273
Living arrangements						
With spouse, children, grandchildren	1.00					
Alone	1.51	(0.587, 3.892)	0.392			
Only with spouse	1.19	(0.653, 2.186)	0.565			
With others	1.78	(1.109, 2.879)	0.017			
Household headship						
Yes	1.00			1.00		
No	1.23	(0.806, 1.887)	0.333	1.22	(0.797, 1.870)	0.160
Household ownership						
Yes	1.00			1.00		
No	1.23	(0.806, 1.887)	0.000	1.22	(0.799, 1.878)	0.352
Separate room						
Yes	1.00			1.00		
No	1.23	(0.809, 1.896)	0.324	1.21	(0.796, 1.830)	0.376
Employment benefit						
Pension and retirement benefit	1.00			1.00		
Pension or retirement benefit	1.53	(0.853, 2.778)	0.152	1.55	(0.859, 2.791)	0.146
None	1.88	(1.207, 2.957)	0.005	1.91	(1.220, 2.988)	0.005
Economic dependency						
No	1.00			1.00		
Yes	1.72	(1.031, 2.859)	0.036	1.72	(1.039, 2.842)	0.035
Get money as per need						
Yes	1.00			1.00		
No	2.93	(1.942, 4.422)	0.0001	2.94	(1.951, 4.436)	0.0001
Any addiction						
No	1.00			1.00		
Yes	1.562	(1.029, 2.371)	0.036	1.57	(1.042, 2.392)	0.031
Number of illnesses/diseases						
None	1.00			1.00		
One	0.92	(0.500, 1.716)	0.807	0.93	(0.506, 1.724)	0.833
Multiple	1.37	(0.684, 2.773)	0.369	1.37	(0.683, 2.770)	0.372
Standard of living index						
High	1.00			1.00		
Low	1.22	(0.790, 1.885)	0.369	1.21	(0.786, 1.878)	0.380
Medium	1.17	(0.777, 1.762)	0.451	1.17	(0.780, 1.766)	0.443

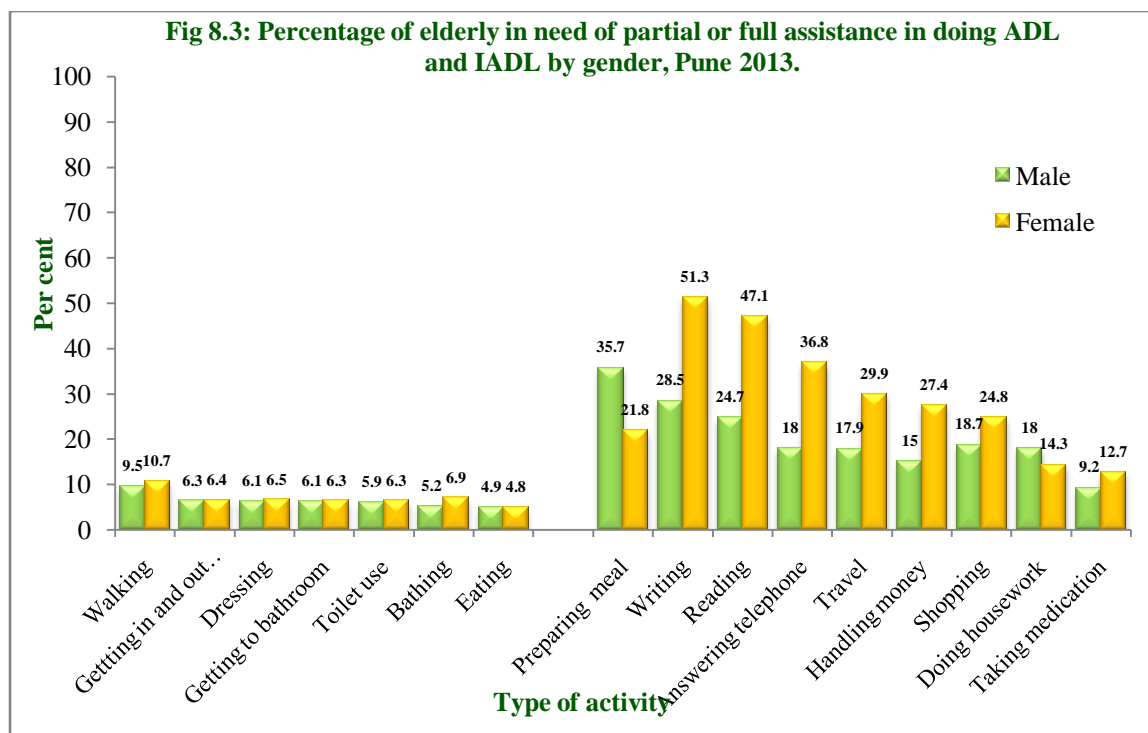
Notes: OR= odds ratio, CI=Confidence interval, p-value by logistic regression, n=950.

in or out of bed, dressing, walking, getting to bathroom, toilet use and bathing. Gender-wise there is marginal difference in performing ADL activities independently. Women are more impaired in activities like walking, getting in-out of bed and toilet use which require use of lower limbs.

But the Table 8.6 gives a different picture about the full or partial help required while performing instrumental activities. In line with general expectations, IADL impaired women outnumber men in a major way. This holds true for all IADL except from preparing meal and doing household work. Even cooking and household work are found to be difficult for about one-fifth of the elderly women.

Figure 8.4 presents the elderly needing full or partial assistance for doing ADL or IADL by broad age groups. Age appears to be a significant influencing parameter in performing any type of activity. With an increase in the proportion of oldest-old elderly (age 80+ years), functional impairment is a serious issue to be addressed in the near future.

	Males (445)				Females (505)			
	Unable to do	With help	With out help	Total	Unable to do	With help	With out help	Total
Activities of daily living (ADL)								
Walking across the room	0.7	8.8	90.6	100.0	1.0	9.7	89.3	100.0
Dressing	0.9	5.2	93.9	100.0	0.8	5.7	93.5	100.0
Bathing	0.7	4.5	94.8	100.0	1.2	5.7	93.1	100.0
Combing hair or shaving	0.7	4.9	94.4	100.0	7.9	4.8	87.3	100.0
Eating	0.4	4.5	95.1	100.0	0.6	4.2	95.2	100.0
Toilet use	0.7	5.2	94.2	100.0	0.6	5.7	93.7	100.0
Getting to the bathroom	0.7	5.4	93.9	100.0	0.6	5.7	93.7	100.0
Getting in and out from bed	0.7	5.6	93.7	100.0	0.8	5.7	93.5	100.0
Instrumental activities of daily living (IADL)								
Preparing meal	32.6	3.1	64.3	100.0	17.6	4.2	78.2	100.0
Handling money	11.9	3.1	84.9	100.0	23.8	3.6	72.7	100.0
Shopping	14.2	4.5	81.3	100.0	20.6	4.2	75.2	100.0
Taking medication in right dose	7.0	2.2	90.8	100.0	10.1	2.6	87.3	100.0
Doing light housework	14.2	3.8	82.0	100.0	12.1	2.2	85.7	100.0
Answering telephone	11.5	6.5	82.0	100.0	25.5	11.3	63.2	100.0
Writing	26.7	1.8	71.5	100.0	49.9	1.4	48.7	100.0
Reading	23.8	0.9	75.3	100.0	45.3	1.8	52.9	100.0
Travel	8.5	9.4	82.0	100.0	16.8	13.1	70.1	100.0



Elderly with number of functionality limitations

After analysing the level of activity (ADL and IADL) limitations and help required by the elderly, it would be easier to interpret the results for those elderly who cannot perform any of the activities which will definitely indicate serious functional disability. The data are further analysed based on a number of activities where the elderly need either partial or full help from others. The three groups are, elderly who do not required any help, i.e., well functionality, the second group is the elderly who do at least any two activities where they need some assistance or help is needed and, the third group is of the elderly who need help for more than two activities.

Fig 8.4: Elderly needing full/partial assistance for activities by broad age group , Pune 2013

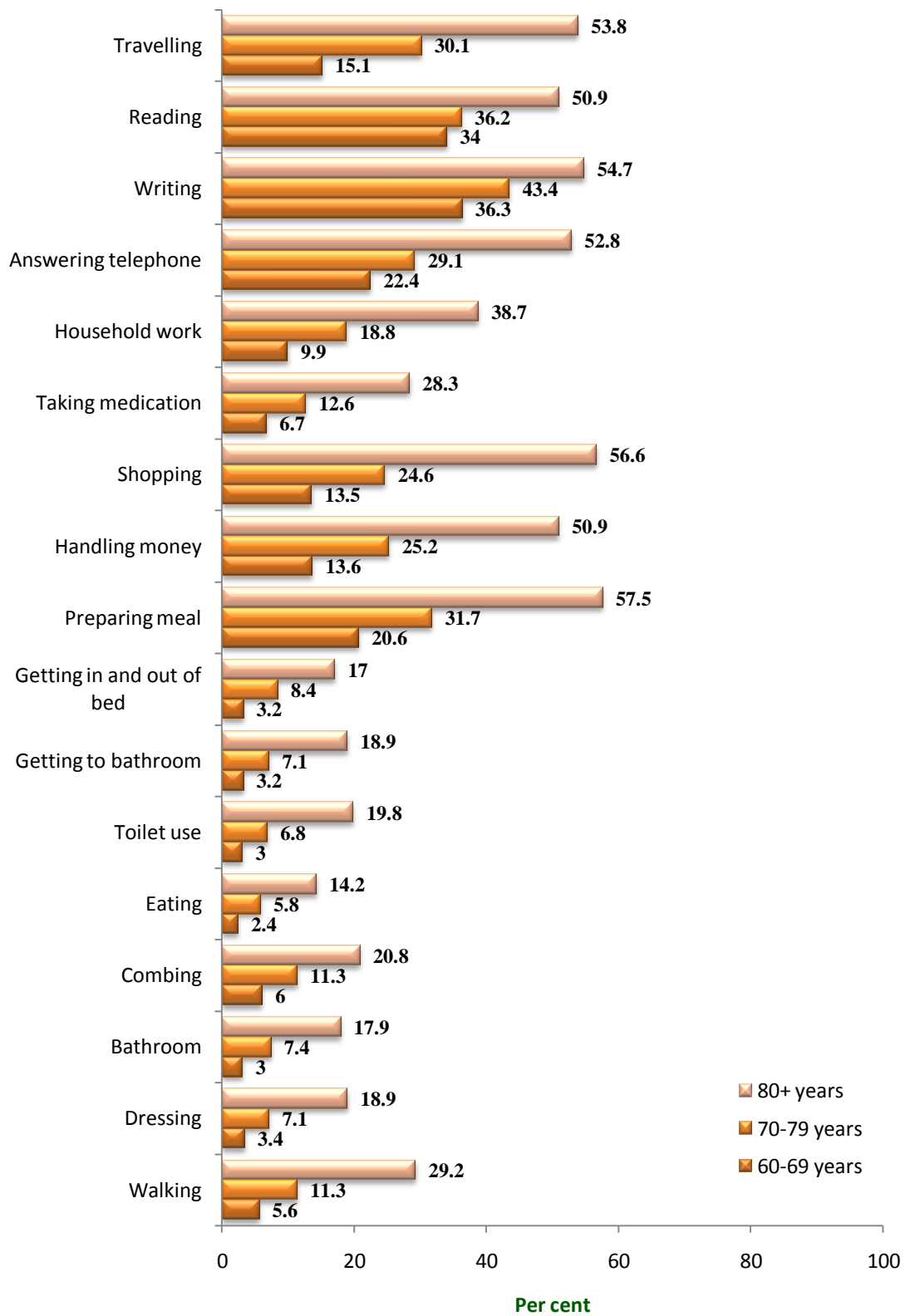


Table 8.7: Percentage distribution of elderly needing help in the number of activities according to sex, Pune 2013.			
Need help in performing the number of activities	Males (445)	Females (505)	Number of elderly
No	49.4	37.2	408
All	3.2	3.0	29
Two	21.6	18.0	187
More than two	25.8	41.8	326
Total	100.0	100.0	950

Around 43 per cent of elderly do not require any help for doing any ADL or IADL and are independent. Compared with them, 3 per cent elderly need help in doing all the mentioned activities which shows that they are not functionally independent. But 20 per cent elderly need help from others for doing at least any two activities and 34 per cent elderly for doing more than two activities. Almost half the elderly male and 37 elderly females don't need any help in doing either activity. However, more of elderly females (41.8%) than elderly males (26%) need help in doing more than two activities. So more elderly women need assistance for doing ADL or IADL compared with elderly males (Table 8.7).

Summary:

This chapter underscores the complex dynamics of the relationship between living arrangements and the self-rated relative and absolute health status, illness and functional activities of the elderly persons in Pune. It reveals that the oldest-old elderly especially widows, with illiteracy, economic dependency, as well as living without spouse but with children and other relatives, are more likely to face poor health outcomes. Economic status and financial dependence emerge as the most robust factors in shaping health of the elderly along with other factors like age and education. Many variables work with multicollinearity like living arrangements and marital status. This is also true in the case of an education and employment benefit.

Multiple illnesses/diseases place the elderly at risk. The streamlining of the healthcare facilities is a challenge and to initiate measures for geriatric support provision is important in urban areas of Pune. With a large percentage of ailing sick and disabled elderly, there would be a need to provide training to family members on elderly care and

support. The inference may serve as a pointer to the fact that the issue of old age health cannot be tackled without a focus on the later life as a major public health issue.

The elderly functionality brings out the fact that around 3 per cent of the elderly in Pune have functionality issues with regard to a number of ADLs or IADLs and they are dependent on others for performing them. This necessitates the need of the care and support of the elderly. More importantly, there is a strong socio-economic gradient for both ADLs and IADLs with illiterate, oldest-old and female elderly being more affected by these limitations.