

Indian Journal of GERONTOLOGY

a quarterly journal devoted to research on ageing

Vol. 28 No. 3, 2014

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Indian Journal of Gerontology
(A quarterly journal devoted to research on ageing)

ISSN : 0971-4189

SUBSCRIPTION RATES

Annual Subscription

US \$ 80.00 (Including Postage)

UK £ 50.00 (Including Postage)

Rs. 600.00 Libraries in India

Free for Members

Financial Assistance Received from :

ICSSR, New Delhi

Printed in India at :

Aalekh Publishers

M.I. Road, Jaipur

Typeset by :

Anurag Kumawat

Jaipur

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Indian Gerontological Association (Registration No 212/1968) is an independent grassroot non-profit organization based in Jaipur (Rajasthan). Our efforts empower and support the underprivileged elderly in rural and urban communities.

We strive to ensure social justice and welfare for people over 60, focusing on those elders who are the most disadvantaged such as elderly women. We protect the civil liberties of elderly citizens as a part of the struggle for individual rights and social progress in India. Currently, the elderly community comprises approximately 10 per cent of the total population of India. This number will increase to nearly 25 per cent within the next twenty years. Neglected and abandoned by society and sometimes by their own families, elders are increasingly subject to conditions of disease and poverty. They lack access to health care, and often face serious discrimination as well as physical and emotional abuse.

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- Capacity Building of Civil Servants or organizations Working on Ageing
- Research & Publication

Indian Journal of Gerontology

2014, Vol. 28, No. 3, pp. 321–347

Does Living Longer Mean Living Healthier? Exploring Disability Free Life Expectancy in India

M. Benson Thomas, K.S. James and S. Sulaja¹

Population Research Centre, Institute for Social and Economic Change,
Nagarbhavi, Bangalore, (Karnataka)

¹Department of Demography, Kerala University Campus, Karyavattam,
Thiruvananthapuram (Kerala)

ABSTRACT

During the last century, India has experienced a drastic reduction in mortality and a high improvement in life expectancy. However, a question is raised regarding the quality of life. Have the extra years gained with respect to life expectancy really improved the quality of life in India? Such a question becomes prominent particularly when one considers the changes in morbidity in the country. So far, there is no study available that combines mortality and morbidity changes to a single index by representing health status in India. This paper is an exploration of quality of life, based on Disability Free Life Expectancy (DFLE) rates for India. It follows the methodology developed by Sullivan (1971), using three levels of disability rates – perceived morbidity, restricted activity and also confined to bed. Mortality data given by Sample Registration System (SRS) and morbidity data given by National Sample Survey Organisation (NSSO) were used for the analysis. The study finds higher rates of decline in DFLE in advanced states with high life expectancy as compared to others indicating a considerable decline in the quality of life with an advancement in life expectancy. Such a reduction is very much higher towards the older ages. On the

other side, females and urbanites experienced considerable decline in the quality of life related to males and rural people respectively, which indicates that even though females and urban people show more expected years of life, they spend more years in morbidity. An exploration by major groups of diseases finds a prominent role for chronic/degenerative diseases in losses in DFLE. The study concludes that a mere increase in longevity does not mean a better life, especially at older ages. It is high time for India to have effective interventions to improve the quality of life along with life expectancy.

Keyword: Disability, Morbidity in India, Longevity and Health. Quality of Life

Over the last century, India has witnessed a drastic improvement in the overall life expectancy (LE). This attainment in life expectancy is often attributed to a decline in the death rates of infants, children and young mothers (Bhat) 1987). In fact, several studies in the recent years also point out that declining death rates among adults and elders in India have contributed significantly towards an improved LE (Saikia, 2011; Thomas and Thomas, 2011). However, a question could be raised in this context regarding the quality of life. Has increased life expectancy really improved the quality of life in India? In this regard, it is important to note that studies dealing with health status of people in India from a combined perspective of mortality and morbidity changes have been few. The lacks of such indices taking into account both mortality and morbidity limits the usefulness and applicability of the state policies with respect to social and healthcare provision in the country.

There is also a serious debate whether an increase in LE can be taken as an indicator of healthy life. According to a group of scholars, mortality decline and resultant increase in LE evolves from the postponement of onset of morbidity and hence, morbidity tends to be compressed with decline in mortality (Fries 1980, 1989, 2000; Fries and Capro, 1981). But, others argue that a fall in mortality may not be accompanied by a decline in morbidity; rather it increases the population with poor health – a scenario where morbidity is widespread in nature with a declining mortality (Gruenberg, 1977; Kramer, 1980; Schneider and Brody, 1983). Between these two

positions, some also argue in favour of the latter scenario, but with a decreasing prevalence of severe health-related disorders (Verbrugge, 1991 and, 1994). Notably, there are not many studies that deal with the changes in morbidity in the context of ageing population and the changing nature of causes of death in India.

While exploring the health status of people in India, a recent study states the expansion of morbidity in the country (Arokyasamy, Yadav, 2013). But this study limits itself to 'self reported ailments' (generally given by the heads of households/and adult members on behalf of individual in the house) collected by NSSO through its last three rounds of health survey. However, the self-reported ailments possibly suffer from a certain degree of bias in that they are largely influenced by socio-economic conditions and educational attainments of the individuals who report such ailments. On the other side, while taking the national averages of the self reported ailments, their study ignores the prevailing disparities in morbidity among the states. Such major inadequacies necessitate a further exploration of the changing health status based on more reliable indicators as proxy for self reported ailments, given a decline in mortality across the states in India.

In this context, an exploration into such lacunae can throw light on priorities in respect of individual and social health provision by identifying healthcare needs of each state. Besides, such an understanding can also help plan a holistic healthcare system to address the needs of the ageing population, an issue which is gaining a considerable recognition in the country. Considering these research gaps, this study examines changes in the health status, using Disability Free Life Expectancy-(DFLE), a combined index of mortality and morbidity. We specifically attempt to explore (i) the pattern of DFLE in India and the states; (ii) the relationship between LE and DFLE among the major states in India; and (iii) the contributions of major groups of ailments to the loss of DFLE.

Data Sets, Sources and Methodology

A combined index of mortality and morbidity is required to explore whether additional years of life are spent with good health or whether, LE is increasing faster than the decline in disability rates. In

this respect, this study uses Disability Free Life Expectancy (DFLE), a measure developed by Sullivan (1971) that has widely been used as a combined index for studying mortality and morbidity. This method for DFLE is simple and easy to understand. An abridged Life Table and the age-wise prevalence of ailments are the only data required for its estimation. As a First Step to DFLE estimation, the person years lived at various age intervals are divided into years spent without ailments and with ailments. The years with ailments are a product of the prevalence of ailments and the years lived under various age groups. In this way, a new series of NLX values were generated which were then used for constructing new life tables showing the number of years that people can expect to live with disability. To obtain the number of years spent without ailments (DFLE), from the total life expectancy, the person years spent with ailments were subtracted.

The analytical part of this paper is divided into two major sections: The first section of the report consists of three levels of DFLE estimation by differently categorizing the severity of ailments. Among them, the first sub-part relies on the proportion of people reporting morbidity as self-perception for DFLE estimation. The second and the third sub-parts of DFLE estimation use the proportion of people reporting activity restriction and confinement to bed respectively as proxies for disability. In the second section, this paper examines the contribution of major groups of diseases to the loss of healthy life years, using a decomposition analysis. All these estimations were carried out for age at birth, young adult age (at exact age 15) and older age (at exact age 60) by considering differences in susceptibility to ailments for those age groups. Further, the ratios of the LE and DFLE were calculated and presented as percentages to indicate life spent at different age stages without ailments. All the estimation and analysis of DFLEs are carried out sex-wise and region-wise (rural, urban) for India and its major states except for DFLE coming under confined to bed.

The study used Age Specific Death Rates (ASDR) given by Sample Registration System (SRS as the mortality data for the construction of abridged Life Tables). The average of ASDR from the years 2002 to 2006 was used as the ASDR of 2004 to avoid inconsistencies. To get the morbidity/ailment related data, the study relied on

a survey conducted by the National Sample Survey Organization in 2004 on Mortality, Health Care and Conditions of the Aged in its 60th round. Three levels of ailments were sourced from the survey: (i) Proportion of people reporting ailment; (ii) Proportion of people reporting activity restriction and (iii) Proportion of people reporting confined to bed during the last fifteen days prior to the survey. It is important to note here that through this survey, we collected data regarding the morbidity status on the basis of self-rated health of the respondents. Therefore, it is not a socio-medico study.

Rate of Morbidity and Disability in India – An Overview

The prevalence of varied ailments is one of the prominent health indicators of any country. A major source of this information in India is the National Sample Survey Organization (NSSO) (Periodical survey reports) which gives the morbidity rate as a proportion of reported ailments for fifteen days prior to their survey. A major lacuna of the morbidity rates given by NSSO is that it is not directly sourced from any formal medical records; rather, they were based on the reported ailments during the survey. This section analyses the morbidity rates in India and its major states for 2004. Moreover, it considers the rate of restricted activity and the rate of confined to bed as proxies for ailments that are apparently free from bias attributable to morbidity related perception.

Table 1 depicts the morbidity rates, rates of restricted activity and rates of confinement to bed prevailing (all three rates are per 1,000 population) in India and the states for 2004. It shows that in India, all the rates are high among females as compared to males, but the differences are very high in respect of morbidity rates. It means that out of a thousand people around 84 males and 96 females suffer from some ailments, whereas, for the other two rates, the differences are meagre (less than one point). Among the states, all the rates are high in Kerala irrespective of sexes except in the case of rate of confinement to bed among females which is relatively high in Himachal Pradesh, indicating that all the morbidity related cases do not end up with a restriction on daily activities. It may be interpreted that females exhibit high morbidities; they may either experience the severity of its

consequences to a lesser extent or they are forced into their activity even with high morbidity.

Table 1
Rate of Ailments in India and Its Major States – 2004

| <i>State/India</i> | <i>Morbidity</i> | | <i>Restricted Activity</i> | | <i>Confined to Bed</i> | |
|--------------------|------------------|---------------|----------------------------|---------------|------------------------|---------------|
| | <i>Male</i> | <i>Female</i> | <i>Male</i> | <i>Female</i> | <i>Male</i> | <i>Female</i> |
| Andhra Pradesh | 90.8 | 101.8 | 26.3 | 25.5 | 9.3 | 10.3 |
| Assam | 77.0 | 85.6 | 32.7 | 39.0 | 13.9 | 17.0 |
| Bihar | 51.1 | 51.7 | 24.7 | 23.1 | 17.6 | 15.8 |
| Chhattisgarh | 66.1 | 70.5 | 36.4 | 38.6 | 17.2 | 18.6 |
| Delhi | 13.1 | 15.1 | 6.4 | 7.9 | 4.1 | 4.0 |
| Gujarat | 72.5 | 70.8 | 22.4 | 19.6 | 11.2 | 8.8 |
| Haryana | 84.7 | 101.3 | 35.3 | 26.1 | 23.0 | 17.3 |
| Himachal Pradesh | 68.9 | 97.8 | 37.1 | 51.8 | 22.8 | 31.2 |
| Jammu & Kashmir | 69.2 | 71.1 | 37.3 | 34.3 | 21.5 | 21.0 |
| Jharkhand | 24.9 | 42.3 | 12.4 | 20.0 | 8.4 | 17.5 |
| Karnataka | 60.5 | 63.2 | 27.6 | 29.0 | 10.9 | 9.5 |
| Kerala | 237.6 | 258.1 | 92.4 | 92.2 | 33.1 | 28.0 |
| Madhya Pradesh | 56.0 | 66.0 | 21.3 | 22.7 | 15.4 | 15.8 |
| Maharashtra | 96.0 | 109.8 | 26.5 | 31.2 | 13.1 | 13.9 |
| Orissa | 75.0 | 71.4 | 44.1 | 36.1 | 26.3 | 20.7 |
| Punjab | 105.4 | 142.1 | 26.0 | 24.5 | 16.1 | 17.4 |
| Rajasthan | 55.5 | 63.9 | 19.5 | 20.8 | 8.5 | 9.2 |
| Tamil Nadu | 86.7 | 104.1 | 27.7 | 31.8 | 11.4 | 14.0 |
| Uttar Pradesh | 94.1 | 107.4 | 24.3 | 26.1 | 11.0 | 13.4 |
| West Bengal | 119.6 | 127.4 | 60.5 | 52.9 | 24.4 | 20.8 |
| India | 84.4 | 95.5 | 30.6 | 31.5 | 14.7 | 15.0 |

Source: Authors' Calculation.

In a nutshell, the pattern of ailments in India shows mainly four characteristics: first, there are high variations between morbidity and disability among the states in India; secondly, there are significant differences between the reported ailments and physical disabilities among them. Thirdly, most of the states exhibiting very high morbidity rates are either economically or demographically advanced in nature. Finally, there exists a high sex-difference in the prevalence of

ailments where females are more prone to morbidity but hardly any disability as compared to males.

Disability Free Life Expectancy (DFLE) in India and Its Major States

DFLE by Morbidity Rates (DFLE_MORB')

A major drawback associated with the rate of ailments is its inadequacy in measuring the health status by considering the overall life span of the people. This apart, the overall rate of ailments is highly biased, while comparing the states which have dissimilar age structures. Notably, the states with a higher elderly population (demographically advanced states) have a higher chance of reported ailments than others. It could be due to the possibility of ailments increasing with age of the people. At the same time, a prominent alternative – Life expectancy (LE) – does not consider morbidity rates for its estimation. Therefore, the expected years of healthy life lived by an average person is unknown even in the context of increasing LE in India. In this respect, DFLE can be taken as a relevant indicator for assessing the level of health status. Notably, DFLE is an index of a population's health status derived from the mortality and morbidity rates. It addresses the question of whether improvement in LE has actually been accompanied by good a health status in the country.

Table 2 records LE and DFLE by morbidity (hereafter DFLE by morbidity termed as DFLE_MORB) at birth in India and its major states for 2004. LE at birth represents on an average the number of years a new born baby is expected to survive at the existing age specific mortality (ASMR) conditions. DFLE indicates the number of expected years of life of a person till his/her death without having any ailment by a priori considering similar death and ailment rates in the entire age interval in his/her life. Table 2 shows that, in India, DFLE represents on an average, both males and females at birth who can be expected to live 56.0 and 56.8 years respectively without going through any ailment. It should be noted that DFLE_MORB works out to about 88.2 per cent and 86.1 per cent of life span for both males and females. In other words, for the year 2004, 7.4 healthy years (11.8% of LE) for males and 9.2 healthy years (13.9% LE) for females are lost due to morbidity.

Table 2
LE and DFLE_MORB at Birth in India, 2004

| State/India | Male | | | Female | | |
|------------------|------|------|-------------|--------|------|-------------|
| | LE | DFLE | DFLE/LE (%) | LE | DFLE | DFLE/LE (%) |
| Andhra Pradesh | 62.9 | 54.3 | 86.3 | 67.8 | 56.6 | 83.5 |
| Assam | 58.8 | 51.9 | 88.2 | 60.9 | 52.0 | 85.3 |
| Bihar | 64.4 | 60.0 | 93.2 | 64.1 | 59.9 | 93.4 |
| Chhattisgarh | 62.0 | 56.0 | 90.3 | 64.9 | 58.9 | 90.8 |
| Delhi | 68.8 | 66.6 | 96.7 | 71.2 | 68.5 | 96.2 |
| Gujarat | 63.6 | 56.4 | 88.7 | 67.9 | 60.7 | 89.3 |
| Haryana | 65.1 | 57.7 | 88.6 | 68.7 | 59.2 | 86.2 |
| Himachal Pradesh | 68.0 | 60.9 | 89.6 | 72.4 | 62.0 | 85.6 |
| Jammu & Kashmir | 69.1 | 59.9 | 86.8 | 70.8 | 60.0 | 84.7 |
| Jharkhand | 63.1 | 61.0 | 96.6 | 62.7 | 59.7 | 95.3 |
| Karnataka | 64.2 | 57.6 | 89.7 | 68.8 | 60.4 | 87.8 |
| Kerala | 70.8 | 51.0 | 72.2 | 76.8 | 52.2 | 68.0 |
| Madhya Pradesh | 59.5 | 54.9 | 92.3 | 61.3 | 55.4 | 90.4 |
| Maharashtra | 66.6 | 57.6 | 86.4 | 70.3 | 59.1 | 84.0 |
| Orissa | 59.3 | 54.3 | 91.5 | 62.4 | 56.9 | 91.2 |
| Punjab | 67.6 | 58.1 | 86.0 | 70.5 | 55.7 | 79.0 |
| Rajasthan | 63.0 | 57.9 | 91.9 | 66.7 | 60.8 | 91.1 |
| Tamil Nadu | 65.8 | 58.1 | 88.3 | 69.1 | 59.2 | 85.7 |
| Uttar Pradesh | 60.9 | 53.3 | 87.6 | 61.5 | 52.4 | 85.3 |
| West Bengal | 65.9 | 55.2 | 83.8 | 69.3 | 56.6 | 81.6 |
| India | 63.4 | 56.0 | 88.2 | 66.0 | 56.8 | 86.1 |

Source: Authors' Calculation.

LE and DFLE for major states in India are also presented in Table 2. The table reflects significant variations in LE and DFLE across the states for both males and females. Notably, a significant loss in DFLE_MORB for states with a high LE as compared to others can be observed. For instance, states like Kerala with a higher LE for both males and females, have witnessed only a lesser percentage of their life span with good health. Another interesting feature is the gender disparities prevailing in LE and DFLE_MORB as shown in Table 2. There is around a 3 year difference between male and female LE in India, indicating more years of survival for females than males. But in

terms of DFLE_MORB, there is hardly one year difference between them. This is mainly because of a large reduction in the healthy years of females in the country. In other words, females survive with relatively low quality of life even though they demonstrate a higher life expectancy than males. A similar pattern of gender disparity in respect of LE and DFLE_MORB is visible across all the states. Thus, a mere increase in LE may not really indicate a better health status the females compared to males.

A similar pattern of DFLE_MORB at birth can also be seen for both rural and urban areas in the country as shown in the table given as Appendix -1. The Appendix-1 shows that DFLE_MORB in rural areas work out to only 55.3 for males and 55.8 years for females with 88.8 per cent and 87.1 per cent respectively of their corresponding LE at birth. Similarly, DFLE_MORB in the urban areas are 58.1 years for males and 58.7 years for females with 86.3 and 83.3 per cent of their LE in the same age. Notably, urban population has a better LE and DFLE_MORB than the rural population. However, the urban population has comparatively lower proportion of DFLE to LE than the rural population. There are gender disparities in LE and DFLE_MORB at birth for both rural and urban areas as shown in the table given as Appendix -1. Across all the states in urban (except Punjab) areas as well as in rural (except Bihar, Jharkhand and Uttar Pradesh) areas in the country, females experience a better DFLE_MORB at their birth than males. However, with respect to DFLE_MORB percentage to LE, they accounted for a lesser proportion than males. It indicates a poor quality of life among females than males.

One of the relevant dimensions of DFLE_MORB is related to the health status of elderly in India. Such an analysis can shed more light on the health status of the elderly especially in the beginning of an ageing scenario in India. Table 3 shows the pattern of LE and DFLE_MORB at the age of 60 in India and its major states. It records a life expectancy of 16.5 years for males and 18.5 years for females at an exact age of 60 for 2004. However the DFLE_MORB records only 11.2 and 12.5 healthy years for males and females respectively for the same ages.

Table 3 also portrays LE and DFLE_MORB at the age of 60 among the states. Interestingly, the states with higher LE rates, accounts for a lesser share of DFLE_MORB to LE than others, indicating an inverse relationship between changes in LE and healthy life years in the older ages. In India and its major states, females experience a better LE and DFLE_MORB at the age of 60. It reflects that females at 60 enjoy better quality of life than their male counterparts.

Table 3
LE and DFLE_MORB at the Age 60 in India, 2004

| State/India | Male | | | Female | | |
|------------------|------|------|-------------|--------|------|-------------|
| | LE | DFLE | DFLE/LE (%) | LE | DFLE | DFLE/LE (%) |
| Andhra Pradesh | 16.6 | 9.7 | 58.4 | 18.7 | 10.3 | 54.8 |
| Assam | 14.9 | 8.6 | 57.8 | 16.3 | 8.6 | 52.5 |
| Bihar | 16.9 | 13.8 | 81.8 | 17.4 | 14.8 | 85.0 |
| Chhattisgarh | 16.1 | 12.1 | 75.3 | 17.4 | 14.2 | 81.5 |
| Delhi | 17.5 | 15.2 | 86.9 | 18.8 | 16.3 | 86.7 |
| Gujarat | 16.2 | 10.1 | 62.5 | 19.4 | 14.4 | 74.2 |
| Haryana | 17.8 | 13.1 | 74.0 | 20.7 | 15.4 | 74.4 |
| Himachal Pradesh | 18.3 | 12.8 | 70.0 | 22.0 | 15.8 | 72.0 |
| Jammu & Kashmir | 19.0 | 11.0 | 58.2 | 20.4 | 11.4 | 55.9 |
| Jharkhand | 15.1 | 13.4 | 88.7 | 15.0 | 14.0 | 93.2 |
| Karnataka | 16.5 | 10.5 | 63.7 | 19.2 | 12.2 | 63.8 |
| Kerala | 17.4 | 7.5 | 43.2 | 21.0 | 8.5 | 40.5 |
| Madhya Pradesh | 15.2 | 11.6 | 76.6 | 17.2 | 13.2 | 76.8 |
| Maharashtra | 17.1 | 10.9 | 63.4 | 19.0 | 11.7 | 61.8 |
| Orissa | 15.4 | 12.7 | 82.2 | 17.0 | 14.0 | 81.9 |
| Punjab | 19.1 | 13.3 | 69.9 | 20.8 | 12.2 | 58.4 |
| Rajasthan | 16.9 | 13.5 | 79.8 | 20.2 | 16.9 | 83.7 |
| Tamil Nadu | 16.7 | 11.6 | 69.6 | 18.1 | 11.9 | 65.6 |
| Uttar Pradesh | 16.1 | 11.3 | 70.4 | 18.0 | 12.7 | 70.8 |
| West Bengal | 15.9 | 9.3 | 58.1 | 18.4 | 10.4 | 56.6 |
| India | 16.5 | 11.2 | 68.1 | 18.5 | 12.5 | 67.3 |

Source: Authors' Calculation.

The pattern of DFLE at the age of 60 in rural and urban areas of the country corresponds to that of all-India scenario as shown in the

table given as Appendix -2. However, DFLE_MORB shows that rural people experience a better DFLE_MORB than urbanites in that age. The DFLE_MORB for males is 11.4 years and for females 12.5 years in rural areas whereas the DFLE_MORB for males is 10.8 years and females 11.4 years in the urban areas. Considerable disparities in LE and DFLE_MORB at the older ages can be seen among the states in the country. Most of the advanced states have lower levels of DFLE_MORB at the age of 60 as against others. Notably, similar to the all India level, most of the states accounts for a higher proportion of DFLE_MORB to LE ratio in the rural areas, reflecting a better quality of life even with low LE among them. Appendix-2 also portrays the gender-wise disparities in DFLE_MORB at the age of 60 in both the rural and urban areas. In almost all the states, females experience a better DFLE_MORB than males in the older ages. However, as percentage of DFLE_MORB to LE, their share is relatively low in rural and urban areas especially in the advanced states with a LE. It indicates that even though females enjoy a better LE, they also suffer from growing disabilities at the same time.

DFLE by Rate of Restricted Activity (DFLE_RA²)

A proper understanding of morbidity, and thereby of the actual DFLE, may be undermined if one goes by only the perceived ailments as 'morbidity'. To tackle this problem, in the coming sections we treat the ailment as 'disability reported', while taking into account the number of persons reporting restricted activity and the rate of 'confined to bed' as proxies.

Table 4
LE and DFLE_RA at Birth and 60 in India, 2004

| State/India | DFLE at Birth | | | | DFLE at Age 60 | | | |
|----------------|---------------|-----------------|--------|-----------------|----------------|-----------------|--------|-----------------|
| | Male | | Female | | Male | | Female | |
| | DFLE | DFLE/ LE (%) | DFLE | DFLE/ LE (%) | DFLE | DFLE/ LE (%) | DFLE | DFLE/ LE (%) |
| Andhra Pradesh | 60.5 | 96.1 | 64.9 | 95.7 | 14.7 | 88.5 | 16.4 | 87.4 |
| Assam | 55.8 | 94.9 | 57.0 | 93.6 | 12.0 | 80.7 | 13.1 | 80.5 |

Cont'd...

Cont'd...

| | | | | | | | | |
|------------------|------|------|------|------|------|------|------|------|
| Bihar | 62.4 | 96.8 | 62.5 | 97.4 | 15.6 | 92.2 | 16.5 | 94.9 |
| Chhattisgarh | 58.8 | 94.9 | 61.2 | 94.4 | 14.2 | 88.5 | 15.0 | 86.6 |
| Delhi | 67.2 | 97.6 | 69.7 | 97.9 | 15.6 | 89.4 | 17.4 | 92.8 |
| Gujarat | 61.5 | 96.7 | 65.9 | 97.0 | 14.6 | 90.4 | 18.0 | 92.6 |
| Haryana | 62.1 | 95.3 | 66.2 | 96.4 | 15.8 | 88.8 | 19.5 | 94.2 |
| Himachal Pradesh | 64.1 | 94.3 | 66.8 | 92.3 | 15.2 | 83.1 | 18.5 | 84.0 |
| Jammu & Kashmir | 64.0 | 92.6 | 65.4 | 92.5 | 14.7 | 77.3 | 15.9 | 78.2 |
| Jharkhand | 62.2 | 98.5 | 61.4 | 98.0 | 14.4 | 95.6 | 14.6 | 97.5 |
| Karnataka | 61.1 | 95.2 | 64.6 | 93.9 | 13.9 | 84.2 | 15.5 | 80.8 |
| Kerala | 63.2 | 89.3 | 68.3 | 88.9 | 13.5 | 77.8 | 16.9 | 80.4 |
| Madhya Pradesh | 57.9 | 97.3 | 59.3 | 96.9 | 14.1 | 92.5 | 16.0 | 93.1 |
| Maharashtra | 64.2 | 96.3 | 67.3 | 95.7 | 15.6 | 90.9 | 17.2 | 90.7 |
| Orissa | 56.3 | 95.0 | 59.5 | 95.4 | 14.0 | 90.6 | 15.4 | 90.4 |
| Punjab | 65.0 | 96.2 | 67.6 | 95.9 | 17.2 | 90.4 | 18.9 | 90.8 |
| Rajasthan | 61.3 | 97.4 | 64.6 | 96.9 | 16.0 | 94.9 | 18.8 | 93.4 |
| Tamil Nadu | 63.5 | 96.4 | 66.4 | 96.1 | 15.4 | 92.2 | 16.7 | 92.6 |
| Uttar Pradesh | 58.9 | 96.8 | 59.1 | 96.2 | 15.1 | 93.6 | 16.5 | 91.8 |
| West Bengal | 60.6 | 92.0 | 63.7 | 91.9 | 12.7 | 80.0 | 14.7 | 79.8 |
| India | 60.8 | 95.8 | 63.0 | 95.4 | 14.7 | 89.3 | 16.5 | 89.2 |

Source: Authors' Calculation.

The status of DFLE by the rate of restricted activity (hereafter DFLE by the rate of restricted activity is termed as DFLE_RA) at birth is given in Table 4. As can be observed from Table 4, the DFLE_RA is 60.8 years for males and 63.0 years for females in the country. This means that males and females can expect to live for 61 years (95.8% of their LE) and 63.0 years (95.4% of their LE) respectively without any restriction on their major activities despite being morbid. Notably, both the DFLE_RA and its share to LE are significantly higher than that of DFLE at birth adjusted by self-reported ailments (morbidity). This indicates that morbidity does not end with a severe reduction in the quality of life, if one considers the restriction of major activities as a proxy for loss in the quality of life.

Considerable disparities in DFLE_RA among the states are reflected here. Except Kerala, in all the other Indian states, more than 90 per cent life expectancy is DFLE_RA. Such a pattern of DFLE_RA among the states confirms our earlier findings that all the reported morbidity need not always end with a severe reduction in the quality of life. On the other side, there is a two year male-female difference in DFLE_RA at birth in India for the year 2004. But these differences vary across the states. Nevertheless, these differences are similar to their LE, which can be due to almost equal reduction in healthy years at the age of birth for males and females.

The pattern of DFLE_RA at birth in rural and urban areas is almost similar to pattern at all India level as shown in Appendix -3. Notably, urban population exhibits a better DFLE_RA than their rural counterparts. On par with the all India average, the DFLE_RA to LE ratio is more than 95 per cent for both rural and urban areas. This is considerably higher than DFLE by morbidity rates. The urbanites show a better DFLE_RA than their rural counterparts across all the states. It also shows that females have recorded a better DFLE than males for both the rural and urban areas in all the states. However, when we consider the ratio of DFLE_RA to LE, males fare better than females in almost all the states in both the rural and urban areas.

The status of DFLE_RA in the older ages is also presented in Table 4. Table 4 portrays the DFLE_RA at the age of 60 in India and its major states. It is seen from the Table that an additional 14.7 years for males and 16.5 years for females can be expected at age of 60 without any severe restriction on their daily activities. This difference is also visible in their DFLE_RA to LE ratio. The exact loss of healthy life with restricted activities constitutes only 11 per cent, whereas, it is more than 30 per cent by morbidity for both males and females in India.

State-wise disparities in DFLE_RA at the age of 60 are also portrayed in Table 4. Table 4 reflects considerable differences in DFLE_RA at the age of 60 among the states. This pattern among the states reiterates the possibility of loss in the quality of life along with

an improvement in LE in India. The proportion of DFLE_RA to LE for the urban people is lower than for the rural people, i.e., a decline in the quality of life is more visible among them with an increment in LE. It indicates the loss of quality life for the older ages in all the states. Also a male-female difference is visible among both rural and urban areas of the states in respect of DFLE_RA at the age of 60, as shown in Appendix -3. All the states (except Bihar for Urban areas) account for a high DFLE_RA for females as compared to males in the older ages. However, the share of DFLE_RA to LE is relatively lower for females than males.

DFLE by Rate of Confined to Bed (DFLE_CB³)

Confined to bed due to ailment can be considered as an extreme level of disability and hence the loss of a healthy life for an individual. In this sense, the expected lifespan can be adjusted with a life free of any disability which restricts a person to his/her bed. Table 5 shows the DFLE adjusted with disability reported as confined to bed (hereafter DFLE_CB) during 2004. It is seen that males born in 2004 can expect to live 98.1 per cent of their life and females can expect to live 97.8 per cent of their life without having serious health problems. Notably, the DFLE_CB shows a lesser reduction in the quality of life, while comparing it with that of DFLE by morbidity as well as restricted activities.

Table 5 also records the DFLE_CB at birth among the states in India. It should be noted that more than 95 per cent of DFLE_CB to LE is visible in all the states, indicating a relatively low reduction in the quality of life while examining the extreme level of disability in terms of confinement to bed. The gender-wise disparity in DFLE_CB is also a matter for concern. Table 5 shows about a two year difference in the DFLE_CB which is less than that of their LE. These gender disparities can be observed among all the states. However, in terms of DFLE to the LE, most of these states show a proportion of females than males, indicating a worsening situation of their actual health status together with an improvement in LE.

Table 5
LE and DFLE_CB at Birth and Age at 60 in India

| State/India | DFLE at Birth | | | | DFLE at Age 60 | | | |
|------------------|---------------|-----------------|--------|-----------------|----------------|-----------------|--------|-----------------|
| | Male | | Female | | Male | | Female | |
| | DFLE | DFLE/ LE (%) | DFLE | DFLE/ LE (%) | DFLE | DFLE/ LE (%) | DFLE | DFLE/ LE (%) |
| Andhra Pradesh | 62.0 | 98.5 | 66.4 | 97.9 | 15.8 | 94.9 | 17.4 | 92.7 |
| Assam | 57.6 | 97.9 | 59.2 | 97.2 | 13.7 | 92.4 | 14.9 | 91.2 |
| Bihar | 63.2 | 98.2 | 63.2 | 98.6 | 16.4 | 97.0 | 16.9 | 97.4 |
| Chhattisgarh | 60.5 | 97.5 | 63.1 | 97.3 | 14.8 | 92.4 | 16.3 | 93.7 |
| Delhi | 67.8 | 98.5 | 70.3 | 98.8 | 16.3 | 93.2 | 18.0 | 96.1 |
| Gujarat | 62.5 | 98.3 | 66.9 | 98.6 | 15.3 | 94.9 | 18.7 | 96.2 |
| Haryana | 63.2 | 97.1 | 67.2 | 97.8 | 16.4 | 92.6 | 20.1 | 97.1 |
| Himachal Pradesh | 65.8 | 96.7 | 68.8 | 95.1 | 16.6 | 90.6 | 19.7 | 89.8 |
| Jammu & Kashmir | 66.0 | 95.6 | 67.4 | 95.3 | 16.1 | 84.7 | 17.6 | 86.2 |
| Jharkhand | 62.6 | 99.1 | 61.6 | 98.2 | 14.7 | 97.6 | 14.7 | 97.7 |
| Karnataka | 63.1 | 98.3 | 67.5 | 98.1 | 15.7 | 95.2 | 18.1 | 94.5 |
| Kerala | 68.2 | 96.3 | 74.2 | 96.5 | 16.2 | 93.2 | 19.6 | 93.6 |
| Madhya Pradesh | 58.4 | 98.1 | 60.0 | 97.9 | 14.5 | 95.0 | 16.4 | 95.4 |
| Maharashtra | 65.4 | 98.1 | 68.9 | 98.0 | 16.3 | 95.0 | 18.2 | 95.6 |
| Orissa | 57.7 | 97.3 | 60.7 | 97.3 | 15.0 | 96.9 | 16.1 | 94.3 |
| Punjab | 65.8 | 97.5 | 68.6 | 97.3 | 17.8 | 93.1 | 19.7 | 94.8 |
| Rajasthan | 62.3 | 98.9 | 65.8 | 98.6 | 16.6 | 98.2 | 19.6 | 97.0 |
| Tamil Nadu | 64.9 | 98.6 | 67.9 | 98.3 | 16.2 | 96.5 | 17.6 | 97.5 |
| Uttar Pradesh | 60.1 | 98.7 | 60.2 | 98.0 | 15.7 | 97.6 | 17.1 | 95.3 |
| West Bengal | 64.0 | 97.1 | 67.0 | 96.7 | 15.1 | 94.9 | 16.9 | 91.8 |
| India | 62.2 | 98.1 | 64.6 | 97.8 | 15.8 | 95.5 | 17.6 | 95.0 |

Source: Authors' Calculation.

The health status of the elderly in terms of DFLE_CB at the age of 60 is given in Appendix – 4. The table shows that it is 95.5 per cent and 95.0 per cent for both male and females relative to their respective LE expectancy in the country, almost 3 per cent lower than that of

DFLE_CB at the age of birth, indicating a worsening health status for both males and females.

The DFLE_CB is significantly higher than DFLE by morbidity and restricted activity, indicating that all the reported morbidity and restricted activity may not end with a severe loss in the quality of life in all the states. It shows that there is difference of 1.8 years in the DFLE_CB between males and females at older ages in India which is slightly lower than that of their LE. Females have recorded a better DFLE_CB than males, while adjusting with the rate of confined to bed in all the states. However, the proportion of DFLE_CB to LE ratio in several states indicates that females share a relatively low quality life than males.

Contributions of Major Disease Groups to the Loss of DFLE in India

Dissimilarities in DFLE at major age intervals among the states could be due to variations in the prevalence of ailments. Therefore, an exploration of the contribution of each ailment and also its causes to the loss in DFLE can be useful to planners and public policy makers to come up with appropriate policy responses aimed at curbing the decline in the quality of life in the country. In this section, the study analyzes the healthy years lost because of major groups of ailments in India for the year 2004, using NSS data. We place the causes of morbidity under broad categories using the criteria developed by Murray, *et al.*, (1992) with respect to an epidemiological perspective for healthcare (Xingming 1999). Although there are difficulties in individually identifying the diseases, a broad classification of diseases in terms of epidemiological perspective as communicable, non-communicable diseases as well as accidents and injuries can help to design effective health interventions.

This study has broadly classified the diseases into four major groups considering the nature of diseases and the availability of information. The diseases coming under the first group are generally communicable and primary healthcare oriented ailments, such as Diarrhoea/dysentery, Worm infestation, Amoebiasis, Hepatitis/Jaundice, Tuberculosis, Sexually transmitted diseases,

Eruptive, Mumps, Diphtheria, Whooping cough, Fever of unknown origin, Tetanus and Filariasis/Elephantiasis. Similarly, the second group consisted of all identified degenerative and chronic diseases such as Heart disease, Gastritis/gastric or peptic ulcer, Hypertension, Respiratory including ear/nose/throat ailments, Bronchial asthma, Disorders of joints and bones, diseases of kidney/urinary system, Prostatic disorders, Gynaecological disorders, Neurological disorders, Psychiatric disorders, Conjunctivitis, Glaucoma, Cataract, Diseases of skin, Goitre, Diabetes mellitus, Under-nutrition, Anaemia, Locomotor, Visual including blindness (excluding cataract), Speech, Hearing, Diseases of Mouth/Teeth/Gum and also Cancer and other tumours. The third group includes accidents, injuries, burns, fractures and poisoning. All other diagnosed and undiagnosed ailments have been considered as the fourth group in this study.

Decomposition of DFLE by Morbidity with Major Group of Ailments at the Age of birth

Healthy years lost because of major groups of diseases in India and its major states are portrayed in Table 6. It is observed that 7.5 years for males and 9.2 years for females in DFLE at birth by morbidity have been lost in the country. The Group of chronic/degenerative diseases (Group 2) is a major cause behind this loss of 4.3 years for males and 5.5 years for females at the age of birth. Notably, the share of this group accounts for 57.8 and 60.0 per cent for both males and females respectively.

The dominance of group 2 diseases followed by group 1 diseases in the loss of DFLE in the age at birth is visible for all the major states in the country for both males and females. However, the share of group 2 in this respect varies across the states without any clear pattern. This also shows not only a higher severity of chronic/degenerative diseases among females than males but also such ailments are the prominent causes behind gender disparities in DFLE in India. Most of the states show a similar pattern where females are badly affected by chronic/degenerative ailments as reflected in a proportionately higher share of DFLE loss for females than males.

Table 6
Healthy Years Lost Due to Major Groups of Diseases at Birth

| State/India | Male | | | | | Female | | | | |
|------------------|-------|---------|---------|---------|---------|--------|---------|---------|---------|---------|
| | Total | Group 1 | Group 2 | Group 3 | Group 4 | Total | Group 1 | Group 2 | Group 3 | Group 4 |
| Andhra Pradesh | 8.6 | 1.3 | 5.5 | 0.3 | 1.5 | 11.2 | 1.4 | 7.7 | 0.3 | 1.9 |
| Assam | 6.9 | 2.6 | 3.6 | 0.0 | 0.7 | 8.9 | 3.5 | 4.5 | 0.0 | 0.9 |
| Bihar | 4.4 | 1.5 | 2.1 | 0.1 | 0.8 | 4.2 | 1.4 | 2.3 | 0.0 | 0.5 |
| Chhattisgarh | 6.0 | 1.8 | 3.0 | 0.2 | 1.1 | 6.0 | 2.1 | 3.0 | 0.0 | 0.8 |
| Delhi | 2.3 | 0.1 | 1.9 | 0.1 | 0.2 | 2.7 | 0.3 | 1.9 | 0.1 | 0.3 |
| Gujarat | 7.2 | 1.7 | 4.8 | 0.3 | 0.5 | 7.3 | 1.6 | 4.8 | 0.2 | 0.7 |
| Haryana | 7.4 | 1.6 | 4.3 | 0.4 | 1.1 | 9.5 | 1.9 | 6.1 | 0.1 | 1.4 |
| Himachal Pradesh | 7.1 | 1.6 | 4.1 | 0.3 | 1.0 | 10.4 | 1.6 | 6.8 | 0.6 | 1.4 |
| Jammu & Kashmir | 9.1 | 1.6 | 6.8 | 0.1 | 0.6 | 10.8 | 1.5 | 8.5 | 0.0 | 0.8 |
| Jharkhand | 2.1 | 0.9 | 0.7 | 0.0 | 0.5 | 3.0 | 1.2 | 1.2 | 0.0 | 0.6 |
| Karnataka | 6.6 | 1.1 | 4.5 | 0.1 | 0.9 | 8.4 | 1.3 | 5.7 | 0.1 | 1.3 |
| Kerala | 19.7 | 3.5 | 12.6 | 0.6 | 3.0 | 24.6 | 3.4 | 16.3 | 0.4 | 4.5 |
| Madhya Pradesh | 4.6 | 1.6 | 2.4 | 0.1 | 0.5 | 5.9 | 1.8 | 3.2 | 0.0 | 0.8 |
| Maharashtra | 9.1 | 1.6 | 5.9 | 0.3 | 1.3 | 11.2 | 2.1 | 7.6 | 0.1 | 1.5 |
| Orissa | 5.1 | 2.0 | 1.8 | 0.2 | 1.0 | 5.5 | 1.9 | 2.3 | 0.0 | 1.3 |
| Punjab | 9.4 | 2.2 | 5.8 | 0.3 | 1.2 | 14.8 | 2.2 | 10.1 | 0.1 | 2.4 |
| Rajasthan | 5.1 | 1.3 | 3.0 | 0.1 | 0.7 | 5.9 | 1.5 | 3.3 | 0.2 | 1.0 |
| Tamil Nadu | 7.7 | 1.4 | 4.7 | 0.3 | 1.3 | 9.9 | 2.1 | 5.8 | 0.4 | 1.6 |
| Uttar Pradesh | 7.6 | 2.4 | 3.6 | 0.3 | 1.4 | 9.0 | 3.0 | 4.2 | 0.1 | 1.6 |
| West Bengal | 10.7 | 1.9 | 6.3 | 0.5 | 2.1 | 12.7 | 2.1 | 7.8 | 0.3 | 2.5 |
| India | 7.5 | 1.7 | 4.3 | 0.2 | 1.2 | 9.2 | 2.0 | 5.5 | 0.2 | 1.5 |

Source: Authors' Calculation.

Decomposition of DFLE by Morbidity with Major Groups of Ailments at the Age of 60

The share of the major group of ailments which cause a loss in DFLE by morbidity at the age of 60 in India and its major states is given in table 7. It shows a loss of 5.3 years for males and 6.1 years for females in DFLE because of various ailments. Notably, there is higher dominance of group 2 ailments in the loss of DFLE. i.e., 3.9 years for males 4.6 years for female (chronic/degenerative group of diseases), accounting for 75.0 per cent of the total loss in DFLE at the age of 60 in India. A higher share of group 2 ailments in the loss in DFLE at the age of 60 than at the age of birth indicates, a high degree of severity of chronic/degenerative diseases leading to a loss in the quality of life with respect to old people in the country.

Table 7
Healthy Years Lost Due to Major Groups of Diseases Among Males at the Age 60 in India

| State/India | Male | | | | | Female | | | | |
|------------------|-------|---------|---------|---------|---------|--------|---------|---------|---------|---------|
| | Total | Group 1 | Group 2 | Group 3 | Group 4 | Total | Group 1 | Group 2 | Group 3 | Group 4 |
| Andhra Pradesh | 6.9 | 0.4 | 5.5 | 0.2 | 0.9 | 8.5 | 0.4 | 6.9 | 0.2 | 1.0 |
| Assam | 6.3 | 1.4 | 4.5 | 0.0 | 0.4 | 7.8 | 1.8 | 5.1 | 0.0 | 0.8 |
| Bihar | 3.1 | 0.5 | 2.1 | 0.0 | 0.5 | 2.6 | 0.4 | 2.1 | 0.0 | 0.2 |
| Chhattisgarh | 4.0 | 0.6 | 2.6 | 0.0 | 0.7 | 3.2 | 0.6 | 2.4 | 0.0 | 0.1 |
| Delhi | 2.3 | 0.0 | 2.2 | 0.0 | 0.1 | 2.5 | 0.0 | 2.2 | 0.1 | 0.2 |
| Gujarat | 6.1 | 0.5 | 5.1 | 0.2 | 0.3 | 5.0 | 0.6 | 4.0 | 0.1 | 0.3 |
| Haryana | 4.6 | 0.9 | 3.2 | 0.1 | 0.4 | 5.3 | 0.6 | 3.9 | 0.0 | 0.7 |
| Himachal Pradesh | 5.5 | 1.1 | 3.6 | 0.1 | 0.6 | 6.1 | 0.5 | 4.4 | 0.5 | 0.7 |
| Jammu & Kashmir | 7.9 | 0.7 | 6.8 | 0.0 | 0.4 | 9.0 | 0.3 | 8.3 | 0.0 | 0.4 |
| Jharkhand | 1.7 | 0.4 | 0.7 | 0.0 | 0.6 | 1.0 | 0.2 | 0.6 | 0.0 | 0.3 |
| Karnataka | 6.0 | 0.2 | 5.1 | 0.0 | 0.7 | 6.9 | 0.4 | 5.7 | 0.1 | 0.8 |
| Kerala | 9.9 | 0.3 | 8.1 | 0.2 | 1.2 | 12.5 | 0.4 | 9.9 | 0.1 | 2.0 |
| Madhya Pradesh | 3.6 | 0.7 | 2.5 | 0.0 | 0.4 | 4.0 | 0.7 | 2.9 | 0.0 | 0.4 |

Cont'd...

Cont'd...

| | | | | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Maharashtra | 6.3 | 0.4 | 5.2 | 0.1 | 0.7 | 7.3 | 0.2 | 6.2 | 0.1 | 0.7 |
| Orissa | 2.8 | 0.4 | 1.8 | 0.1 | 0.4 | 3.1 | 0.5 | 2.0 | 0.0 | 0.5 |
| Punjab | 5.7 | 0.7 | 4.4 | 0.0 | 0.6 | 8.7 | 0.7 | 6.6 | 0.1 | 1.3 |
| Rajasthan | 3.4 | 0.5 | 2.6 | 0.0 | 0.3 | 3.3 | 0.5 | 2.4 | 0.1 | 0.4 |
| Tamil Nadu | 5.1 | 0.3 | 4.0 | 0.0 | 0.8 | 6.2 | 0.4 | 4.8 | 0.4 | 0.7 |
| Uttar Pradesh | 4.8 | 0.9 | 2.9 | 0.1 | 0.9 | 5.2 | 1.2 | 3.2 | 0.1 | 0.8 |
| West Bengal | 6.7 | 0.4 | 5.0 | 0.2 | 1.0 | 8.0 | 0.7 | 5.9 | 0.2 | 1.1 |
| India | 5.3 | 0.5 | 3.9 | 0.1 | 0.7 | 6.1 | 0.6 | 4.6 | 0.1 | 0.8 |

Source: Authors' Calculation

Table 7 reflects the state-wise disparities in the proportional share of major groups of ailments to the loss in DFLE by morbidity at the age of 60 in India. Among all the states, it has been seen that group 2 diseases are a major factor behind the loss in DFLE. In India and its major states, group 2 diseases contribute to the differences between males and females in the loss of DFLE than the other groups of ailments. It can be seen that in all the states group 2 diseases causes more loss for females than the males as reflected in their lower ratios of LE to DFLE.

Conclusion

All the way through, this paper analysed three major perspectives on Disease Free Life Expectancy in India. While identifying the pattern of DFLE, the study used three levels of ailments such as the rate of perceived morbidity, the rate of restricted activity and also the rate of confined to bed for analysis. An exploration of all the three levels of DFLE has clearly shown that there is a considerable amount of DFLE loss in India and its states. The highest loss recorded for DFLE by the rates reported morbidity followed by DFLE by the rates of restricted activity and confined to bed. There is a high difference between DFLE adjusted by morbidity and the other two levels of DFLE, indicating that all the perceived morbidities do not lead to a severe loss in the quality of life. Notably, those states which have attained high life expectancy also experienced a higher loss in DFLE than the other states. This paradoxical trend in LE and DFLE adjusted with all the three levels of ailments indicates that India is facing 'morbidity expansion' along with an improvement in LE. Moreover,

it also points out that a mere increase in LE is not a reflection of an improvement in the quality of life in the country.

There are significant levels of reduction in the quality of life at older ages in India and all the states. Notably, those states which are advanced in LE with a proportionately more aged population have shown a relatively more reduction in DFLE in the older ages. This alarming trend of loss in DFLE among the advanced states, is a major concern for the country in the context of expected ageing population in most of the states in the near future. However, females and urbanites show a higher longevity than their counterparts, besides a higher loss in the quality of life, considering the proportion of DFLE to LE especially at the older ages.

A decomposition analysis of a loss in DFLE (adjusted with the rate of morbidity) by major groups of ailments has shown a considerable dominance of chronic/degenerative diseases in a low quality of health status in India and among major states. The share of healthy years lost because of this group of ailments is substantially higher towards the older ages, indicating that elders suffer more from chronic/degenerative ailments than the youngsters. This phenomenon gains importance in the context where most of the states are registering high proportion of elderly population because of a demographic transition.

In short, the analysis of DFLE shows a considerable decline of quality in life due to ailments in India and among major states, especially in respect of the older ages. This decline in healthy years is considerably higher for females and urbanites. Further, this phenomenon is comparatively higher in the states with high life expectancies, while the decline is mainly due to chronic/degenerative diseases. The study concludes that a mere increase in longevity does not mean a better life especially, at older ages in the country.

A disability-free-life expectancy is actually only an estimation. There are several elements such as awareness about healthy life, the availability and accessibility of health care systems, etc., that act as contributory factors in achieving a better quality of life. In the context of a substantial loss in DFLE in India, there is a need for devising policies that promote preventive, curative as well as promotional strategies to curb the loss in the quality of life especially due to chronic/degenerative ailments. In the context of high disparities in

DFLE among the states, policies need to give high priority to state-wise interventions rather than the nationwide programs considering the categorical relevance of factors such as age, sex as well as regional factors. Moreover, there is a need for a continuous monitoring and evaluation system which can be implemented for the proper functioning of the health care programs and policies in the country.

Acknowledgement

Authors are grateful to Mr. Shiju Joseph for his valuable contribution to making the final draft of this paper. They would also like to express their thanks to Indian Association of Study of Population (IASP) as well as International Union for Scientific Study of Population (IUSSP) for providing an opportunity to present this paper at their conferences.

Notes

1. DFLE_RA is the expected years of life lived without disabilities that lead to restricted activities.
2. DFLE_CB is the expected years of life lived without disabilities that caused confine to bed.

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Appendix 1

LE and DFLE MORB at birth in India, 2004

| State/ India | Male | | | | | | Female | | | | | |
|------------------|------|------|------|------|-------------|------|--------|------|------|------|-------------|------|
| | LE | | DFLE | | LE/DFLE (%) | | LE | | DFLE | | LE/DFLE (%) | |
| | R | U | R | U | R | U | R | U | R | U | R | U |
| Andhra Pradesh | 61.6 | 66.9 | 53.9 | 54.9 | 87.6 | 82.1 | 66.6 | 70.7 | 56.6 | 55.9 | 84.9 | 79.1 |
| Assam | 57.7 | 66.5 | 50.9 | 58.7 | 88.3 | 88.3 | 59.7 | 70.6 | 51.1 | 60.7 | 85.6 | 86.0 |
| Bihar | 64.1 | 67.6 | 60.0 | 61.1 | 93.6 | 90.4 | 63.7 | 67.6 | 59.7 | 61.9 | 93.7 | 91.5 |
| Chhattisgarh | 61.9 | 63.1 | 55.9 | 56.8 | 90.3 | 90.0 | 64.0 | 69.0 | 58.5 | 59.9 | 91.4 | 86.8 |
| Delhi | 65.7 | 69.7 | - | 67.1 | - | 96.2 | 70.5 | 71.4 | - | 68.4 | - | 95.8 |
| Gujarat | 61.6 | 66.8 | 54.9 | 58.4 | 89.2 | 87.4 | 66.7 | 70.3 | 60.1 | 61.9 | 90.1 | 88.0 |
| Haryana | 64.6 | 66.3 | 57.4 | 58.4 | 88.8 | 88.1 | 68.1 | 70.1 | 58.9 | 60.5 | 86.4 | 86.3 |
| Himachal Pradesh | 67.7 | 72.0 | 60.5 | 65.4 | 89.5 | 90.7 | 72.1 | 76.0 | 61.7 | 65.7 | 85.5 | 86.5 |
| Jammu & Kashmir | 68.9 | 69.8 | 59.9 | 60.1 | 86.9 | 86.1 | 69.9 | 74.6 | 59.3 | 64.3 | 84.9 | 86.2 |
| Jharkhand | 62.2 | 67.2 | 60.4 | 63.8 | 97.1 | 95.0 | 61.4 | 69.0 | 58.9 | 64.4 | 95.8 | 93.2 |
| Karnataka | 62.8 | 67.4 | 56.5 | 60.3 | 90.0 | 89.4 | 67.0 | 73.0 | 59.2 | 63.0 | 88.4 | 86.4 |
| Kerala | 70.7 | 70.9 | 50.8 | 52.0 | 71.8 | 73.3 | 76.9 | 76.8 | 51.8 | 53.7 | 67.4 | 69.9 |
| Madhya Pradesh | 58.2 | 65.3 | 54.0 | 59.3 | 92.7 | 90.7 | 59.0 | 67.1 | 53.5 | 59.8 | 90.7 | 89.1 |
| Maharashtra | 65.6 | 68.3 | 58.0 | 56.9 | 88.4 | 83.3 | 69.0 | 72.3 | 59.5 | 58.4 | 86.1 | 80.8 |
| Orissa | 59.4 | 65.6 | 54.2 | 60.5 | 91.2 | 92.1 | 61.8 | 67.4 | 56.3 | 61.2 | 91.1 | 90.8 |
| Punjab | 67.1 | 68.2 | 57.8 | 59.1 | 86.1 | 86.5 | 69.7 | 72.0 | 54.5 | 58.9 | 78.2 | 81.8 |
| Rajasthan | 62.4 | 65.7 | 57.7 | 58.7 | 92.5 | 89.3 | 66.1 | 69.6 | 60.7 | 61.3 | 91.9 | 88.0 |
| Tamil Nadu | 64.5 | 68.5 | 57.2 | 60.0 | 88.7 | 87.5 | 67.5 | 72.1 | 58.3 | 60.7 | 86.4 | 84.2 |
| Uttar Pradesh | 60.1 | 64.7 | 52.7 | 56.3 | 87.8 | 86.9 | 60.6 | 65.7 | 52.1 | 54.0 | 86.1 | 82.1 |
| West Bengal | 64.8 | 69.0 | 54.9 | 56.4 | 84.6 | 81.8 | 68.3 | 72.4 | 57.1 | 55.2 | 83.6 | 76.2 |
| India | 62.3 | 67.3 | 55.3 | 58.1 | 88.8 | 86.3 | 64.0 | 70.5 | 55.8 | 58.7 | 87.1 | 83.3 |

Appendix 2

LE and DFLE_MORB at the age 60 in India, 2004

| State/India | Male | | | | | | Female | | | | | |
|------------------|------|------|---------|------|------|------|---------|------|------|------|---------|------|
| | R | U | R | U | R | U | R | U | R | U | R | U |
| | LE | DFLE | DFLE/LE | (%) | LE | DFLE | DFLE/LE | (%) | LE | DFLE | DFLE/LE | (%) |
| Andhra Pradesh | 16.4 | 17.3 | 10.2 | 7.6 | 62.4 | 44.2 | 18.8 | 18.6 | 11.0 | 8.1 | 58.4 | 43.6 |
| Assam | 14.5 | 16.4 | 8.3 | 9.8 | 57.4 | 59.9 | 15.9 | 19.5 | 8.3 | 13.1 | 51.8 | 67.3 |
| Bihar | 16.8 | 18.3 | 13.9 | 14.0 | 82.6 | 76.6 | 17.3 | 17.8 | 14.8 | 14.2 | 85.7 | 79.6 |
| Chhattisgarh | 16.5 | 14.6 | 12.5 | 10.4 | 75.9 | 71.0 | 17.4 | 17.4 | 14.5 | 12.5 | 83.4 | 71.6 |
| Delhi | 15.2 | 18.2 | - | 15.5 | - | 85.1 | 17.9 | 18.9 | - | 16.1 | - | 85.4 |
| Gujarat | 16.6 | 16.2 | 10.5 | 9.7 | 63.2 | 60.0 | 19.7 | 18.8 | 15.1 | 13.0 | 76.9 | 69.2 |
| Haryana | 18.0 | 16.7 | 13.6 | 12.0 | 75.3 | 72.0 | 20.9 | 20.2 | 16.1 | 14.1 | 76.9 | 69.6 |
| Himachal Pradesh | 18.2 | 19.9 | 12.8 | 13.4 | 70.4 | 67.5 | 21.9 | 23.4 | 15.8 | 17.0 | 72.1 | 72.6 |
| Jammu & Kashmir | 19.2 | 18.3 | 11.2 | 10.5 | 58.2 | 57.6 | 20.1 | 21.8 | 10.9 | 15.8 | 54.0 | 72.4 |
| Jharkhand | 14.8 | 15.9 | 13.4 | 13.4 | 90.6 | 84.3 | 14.6 | 17.4 | 13.6 | 16.1 | 93.5 | 92.7 |
| Karnataka | 16.2 | 17.1 | 10.5 | 10.7 | 65.1 | 62.7 | 18.8 | 20.2 | 12.5 | 11.6 | 66.5 | 57.4 |
| Kerala | 17.6 | 16.7 | 7.4 | 7.8 | 42.1 | 47.0 | 21.3 | 20.0 | 8.6 | 8.4 | 40.3 | 42.1 |
| Madhya Pradesh | 14.9 | 16.6 | 11.7 | 12.0 | 78.2 | 72.2 | 17.7 | 17.8 | 13.9 | 12.8 | 78.8 | 71.8 |
| Maharashtra | 17.0 | 17.5 | 11.3 | 10.2 | 66.5 | 58.2 | 18.9 | 19.3 | 12.8 | 10.2 | 67.9 | 52.8 |
| Orissa | 15.8 | 17.1 | 13.0 | 13.6 | 82.4 | 79.4 | 17.0 | 17.5 | 14.0 | 12.8 | 82.5 | 72.8 |
| Punjab | 19.6 | 17.8 | 14.3 | 12.0 | 72.9 | 67.4 | 21.3 | 19.6 | 12.5 | 12.3 | 58.9 | 62.5 |
| Rajasthan | 17.0 | 16.5 | 13.9 | 11.6 | 82.0 | 70.2 | 20.4 | 19.4 | 17.7 | 13.8 | 86.7 | 71.2 |
| Tamil Nadu | 16.2 | 18.0 | 11.3 | 12.3 | 70.1 | 68.5 | 17.3 | 19.5 | 11.8 | 11.9 | 68.4 | 61.1 |
| Uttar Pradesh | 15.9 | 16.9 | 11.3 | 11.9 | 70.6 | 70.3 | 17.9 | 18.0 | 13.0 | 11.5 | 72.5 | 63.8 |
| West Bengal | 15.3 | 17.3 | 9.5 | 8.7 | 62.0 | 50.4 | 17.9 | 19.6 | 10.7 | 9.3 | 60.0 | 47.5 |
| India | 16.3 | 17.3 | 11.4 | 10.8 | 69.8 | 62.8 | 17.8 | 19.2 | 12.5 | 11.4 | 70.0 | 59.7 |

Appendix 3

LE and DFLE RA at birth in India, 2004

| State/ India | Male | | | | | | Female | | | | | |
|------------------|------|------|------|------|-------------|------|--------|------|------|------|-------------|------|
| | LE | | DFLE | | DFLE/LE (%) | | LE | | DFLE | | DFLE/LE (%) | |
| | R | U | R | U | R | U | R | U | R | U | R | U |
| Andhra Pradesh | 61.6 | 66.9 | 59.1 | 64.3 | 96.0 | 96.2 | 66.6 | 70.7 | 63.8 | 67.6 | 95.8 | 95.5 |
| Assam | 57.7 | 66.5 | 54.8 | 62.9 | 95.0 | 94.6 | 59.7 | 70.6 | 56.0 | 65.6 | 93.8 | 92.9 |
| Bihar | 64.1 | 67.6 | 62.3 | 64.1 | 97.2 | 94.7 | 63.7 | 67.6 | 62.2 | 65.0 | 97.6 | 96.2 |
| Chhattisgarh | 61.9 | 63.1 | 58.8 | 59.4 | 95.1 | 94.1 | 64.0 | 69.0 | 60.6 | 64.3 | 94.6 | 93.1 |
| Delhi | 65.7 | 69.7 | - | 67.8 | - | 97.3 | 70.5 | 71.4 | - | 69.7 | - | 97.7 |
| Gujarat | 61.6 | 66.8 | 59.4 | 65.0 | 96.4 | 97.2 | 66.7 | 70.3 | 64.6 | 68.4 | 96.9 | 97.2 |
| Haryana | 64.6 | 66.3 | 61.8 | 62.4 | 95.6 | 94.2 | 68.1 | 70.1 | 65.5 | 68.0 | 96.2 | 97.0 |
| Himachal Pradesh | 67.7 | 72.0 | 63.8 | 68.7 | 94.2 | 95.4 | 72.1 | 76.0 | 66.4 | 71.6 | 92.0 | 94.2 |
| Jammu & Kashmir | 68.9 | 69.8 | 64.0 | 64.0 | 92.9 | 91.7 | 69.9 | 74.6 | 65.0 | 68.2 | 93.0 | 91.3 |
| Jharkhand | 62.2 | 67.2 | 61.3 | 65.9 | 98.6 | 98.1 | 61.4 | 69.0 | 60.3 | 67.3 | 98.2 | 97.5 |
| Karnataka | 62.8 | 67.4 | 59.8 | 64.6 | 95.3 | 95.8 | 67.0 | 73.0 | 63.1 | 68.0 | 94.2 | 93.2 |
| Kerala | 70.7 | 70.9 | 62.4 | 65.5 | 88.2 | 92.3 | 76.9 | 76.8 | 67.9 | 69.6 | 88.4 | 90.6 |
| Madhya Pradesh | 58.2 | 65.3 | 56.6 | 63.7 | 97.3 | 97.6 | 59.0 | 67.1 | 57.1 | 64.8 | 96.9 | 96.6 |
| Maharashtra | 65.6 | 68.3 | 63.1 | 66.1 | 96.2 | 96.7 | 69.0 | 72.3 | 65.9 | 69.2 | 95.5 | 95.8 |
| Orissa | 59.4 | 65.6 | 56.3 | 62.9 | 94.8 | 95.8 | 61.8 | 67.4 | 58.8 | 65.2 | 95.2 | 96.8 |
| Punjab | 67.1 | 68.2 | 64.9 | 65.1 | 96.8 | 95.5 | 69.7 | 72.0 | 66.9 | 69.2 | 96.1 | 96.1 |
| Rajasthan | 62.4 | 65.7 | 60.8 | 63.6 | 97.5 | 96.8 | 66.1 | 69.6 | 64.2 | 67.0 | 97.1 | 96.2 |
| Tamil Nadu | 64.5 | 68.5 | 62.2 | 66.1 | 96.4 | 96.4 | 67.5 | 72.1 | 64.5 | 70.1 | 95.5 | 97.2 |
| Uttar Pradesh | 60.1 | 64.7 | 58.1 | 62.6 | 96.7 | 96.8 | 60.6 | 65.7 | 58.3 | 63.0 | 96.2 | 96.0 |
| West Bengal | 64.8 | 69.0 | 59.6 | 63.6 | 91.9 | 92.2 | 68.3 | 72.4 | 62.7 | 66.7 | 91.8 | 92.1 |
| India | 62.3 | 67.3 | 59.6 | 64.5 | 95.7 | 95.9 | 64.0 | 70.5 | 61.1 | 67.2 | 95.4 | 95.4 |

Appendix 4

LE and DFLE at the age 60 in India, 2004- Restricted activity

| State/ India | Male | | | | | | Female | | | | | |
|------------------|------|------|------|------|-------------|------|--------|------|------|------|-------------|------|
| | LE | | DFLE | | DFLE/LE (%) | | LE | | DFLE | | DFLE/LE (%) | |
| | R | U | R | U | R | U | R | U | R | U | R | U |
| Andhra Pradesh | 16.4 | 17.3 | 14.6 | 15.0 | 88.9 | 87.1 | 18.8 | 18.6 | 16.6 | 16.0 | 88.3 | 86.1 |
| Assam | 14.5 | 16.4 | 11.8 | 12.2 | 81.6 | 74.4 | 15.9 | 19.5 | 12.9 | 15.9 | 81.1 | 81.6 |
| Bihar | 16.8 | 18.3 | 15.5 | 16.3 | 92.6 | 89.6 | 17.3 | 17.8 | 16.5 | 15.9 | 95.6 | 89.4 |
| Chhattisgarh | 16.5 | 14.6 | 14.8 | 11.9 | 90.1 | 81.4 | 17.4 | 17.4 | 15.2 | 14.3 | 87.5 | 82.3 |
| Delhi | 15.2 | 18.2 | - | 16.0 | - | 87.9 | 17.9 | 18.9 | - | 17.4 | - | 91.9 |
| Gujarat | 16.6 | 16.2 | 14.9 | 15.0 | 89.6 | 92.4 | 19.7 | 18.8 | 18.1 | 17.4 | 92.1 | 92.7 |
| Haryana | 18.0 | 16.7 | 16.3 | 14.0 | 90.4 | 83.7 | 20.9 | 20.2 | 19.9 | 18.4 | 95.1 | 91.2 |
| Himachal Pradesh | 18.2 | 19.9 | 15.1 | 17.2 | 83.0 | 86.6 | 21.9 | 23.4 | 18.3 | 20.3 | 83.7 | 86.5 |
| Jammu & Kashmir | 19.2 | 18.3 | 15.0 | 13.4 | 78.2 | 73.3 | 20.1 | 21.8 | 15.8 | 17.9 | 78.6 | 81.9 |
| Jharkhand | 14.8 | 15.9 | 14.2 | 14.9 | 96.0 | 93.6 | 14.6 | 17.4 | 14.2 | 16.7 | 97.7 | 96.3 |
| Karnataka | 16.2 | 17.1 | 13.8 | 14.7 | 85.4 | 85.7 | 18.8 | 20.2 | 15.5 | 15.6 | 82.4 | 77.4 |
| Kerala | 17.6 | 16.7 | 13.3 | 14.1 | 75.4 | 84.7 | 21.3 | 20.0 | 17.1 | 16.3 | 80.2 | 81.5 |
| Madhya Pradesh | 14.9 | 16.6 | 13.8 | 15.7 | 92.1 | 94.4 | 17.7 | 17.8 | 16.6 | 16.2 | 94.0 | 90.9 |
| Maharashtra | 17.0 | 17.5 | 15.4 | 16.1 | 90.5 | 92.3 | 18.9 | 19.3 | 17.2 | 17.2 | 91.1 | 89.4 |
| Orissa | 15.8 | 17.1 | 14.4 | 14.5 | 91.5 | 85.0 | 17.0 | 17.5 | 15.3 | 15.8 | 90.3 | 89.9 |
| Punjab | 19.6 | 17.8 | 18.0 | 15.9 | 92.1 | 89.1 | 21.3 | 19.6 | 19.5 | 17.9 | 91.5 | 91.1 |
| Rajasthan | 17.0 | 16.5 | 16.3 | 15.1 | 95.7 | 91.8 | 20.4 | 19.4 | 19.4 | 17.4 | 94.9 | 89.6 |
| Tamil Nadu | 16.2 | 18.0 | 14.9 | 16.6 | 92.2 | 92.3 | 17.3 | 19.5 | 16.0 | 18.3 | 92.1 | 93.9 |
| Uttar Pradesh | 15.9 | 16.9 | 14.9 | 15.8 | 93.6 | 93.4 | 17.9 | 18.0 | 16.5 | 16.7 | 91.8 | 92.5 |
| West Bengal | 15.3 | 17.3 | 12.2 | 14.0 | 79.8 | 80.8 | 17.9 | 19.6 | 14.0 | 16.2 | 78.3 | 82.8 |
| India | 16.3 | 17.3 | 14.6 | 15.3 | 89.5 | 88.8 | 17.8 | 19.2 | 16.0 | 16.9 | 89.5 | 88.4 |

Indian Journal of Gerontology

2014, Vol. 28, No. 3, pp. 348–356

Construction and Validation of Activity Rating Scale For Older Persons

*K. Maheswari and P. Ilango**

Department of Social Work, Bharathidasan University
College, Perambalur (TN)

*Department of Social Work, Mangalore University (Karnataka)

ABSTRACT

The objective of the study was to develop a reliable and valid measure to assess the activity levels among the older persons. The items related to physical, psychological and social activity for the proposed scale to assess activity levels among the older persons were generated by the help of reviewing of related literature, unstructured interviews of older persons, gerontologists and researchers. Structured interview schedule was prepared and pilot study on randomly selected 300 respondents was conducted to check the accountability of the schedule. Item reproducibility co-efficient and Guttman's α co-efficient were calculated to estimate the validity and reliability of the scale. A high degree of reliability was found and α value is 0.89. A 30 item rating scale was developed. The scale includes three domains such as physical activity, psychological activity and social activity. The results of this study demonstrate that the Activity Rating Scale for Older Persons (ARSOP) is a valid and reliable instrument for measuring the activity levels of older persons.

Keywords: Activity, Older persons, Rating scale, Reliability

Literature on activity of older persons is relatively scant when compared to the literature on social economic conditions, quality of life, disability, diseases and mental disorder. Over the past two decades, a considerable number of empirical research has been carried out focusing on well-being, quality of life, instrumental activities, life satisfaction, spirituality, falls, pain, grief etc., Most of the instruments were constructed only on the daily and physical activities in general and they do not concentrate much on overall activity.

An activity is a focused behavior, an ability a person can perform. Mind and body do not work separately; activity is a unified concept. Activity of a human being comprises of other aspects such as physical, social, and psychological constructs. There is no specific instrument to assess the overall activity of a person, its intensity, frequency, ability, involvement etc. Self-report methods are the most convenient and cheapest way to collect physical activity data from a large number of people in a short time. Physical activity questionnaires (PAQs) are the most widely used self-report instrument to assess physical activity and have been used extensively in research. Self-report measures (Matthews, 2002) include self or interviewer administered activity diaries or logs recall questionnaires, quantitative history and global self report. Self-reports are also culturally dependent. Validity results assessed in one population may not be directly applicable to other populations, ethnic groups or other geographical regions. Few questionnaires have been appropriately validated in developing countries.

Some instruments have been constructed to measure activity but each instrument has its own demerits. The Physical Activity Scale for the Elderly (PASE) was used to assess the physical activity in rural population and it was found that perceived health was positively related to physical activity but PASE was found to be marginally valid and further investigation of the instrument's construct validity is needed (Allison *et al.*). International Physical Activity Questionnaire (IPAQ) is available in a short form for examination but there is a need for a longer form when more detailed physical activity information is required. The questionnaire was tested for reliability and validity (Craig *et al.*, 2003) and this has been replicated in a number of countries but this questionnaire is not designed to provide a detailed

assessment of physical activity in all domains. Global Physical Activity Questionnaire (GPAQ) was developed with the help of World Health Organization and it gathers information on participation in physical activity in three domains: activity at work, travel to and from places and recreational activities. Both the IPAQ and the GPAQ had been developed for observational studies and the GPAQ more specifically for surveillance studies in developing countries.

Bull *et al.*, (2009) study revealed that overall GPAQ provides reproducible data and point out a moderate-strong positive correlation with IPAQ, an earlier validated and accepted measure of physical activity. Validation of GPAQ has produced poor results but the importance was similar to the range reported in other studies. Physical activity questionnaires which have been constructed and validated for younger populations will not be appropriate to use for the older population. The elderly are a diverse group in terms of physical and cognitive function and it is necessary to study both the aspects. Many questionnaires have focused on the leisure time and have not incorporated other domains which will provide a measure of regular activity. PAQs are also subject to bias because of cognitive demands regarding the recall process itself. Wareham (2007) has found that many questionnaires used in observational studies have focused only on leisure time physical activity and concluded that focus must not be given to only one aspect to assess physical activity. This is the case where the exact relationship between physical activity and health outcomes are not identified clearly. Oguma (2004) indicated that most of the physical activity questionnaires focus on participation in sports and especially for men only. It is noted from the various studies that, most of the activity rating scales concentrate only on daily living activities or physical activities, sports and exercise rather than overall activity of human being in later stage of life.

Objectives of the Study

1. To develop Activity Rating scale for older persons.
2. To find out the interrelationship between the 3 dimensions of Activity Rating scale.
3. To find out the reliability and validity quotients of the scale.

4. To prepare the scoring key and guidelines for users of activity rating scale for older persons.

Methodology

Among the techniques available for the construction of scale, the methodology suggested by Likert (1932) and Edward (1957) was used in this study for scale construction and for ascertaining the response of the scale. The technique chosen to construct the activity scale was of “scale product method” which combines the technique of equal appearing interval scale of Thurstone for selection of the items and Likert techniques of summated rating for ascertaining the response on the scale.

Procedure Followed for Developing ARSOP

Stage: 1 Item Collection

Selection of Statements or Items of the Scale

A statement may be defined as anything that is said about a psychological object. As a first step, the investigator surveyed a wide variety of sources like books, research articles, journals etc, related to the concepts of activity and its domain namely physical, psychological and social activity. The investigator carefully examined the definition of each dimension and constructed 61 items that were related to these dimensions.

Stage: 2 Judge’s Rating of Statements

In order to judge the degree of “Unfavourableness” to “favourableness” of each statement on the five-point equally appearing interval continuum a panel of 5 experts in the field of Gerontology were selected. They were requested to check these items for clarity and classify these items into 3 domains such as physical, psychological and social activity. The items which were considered by experts as misleading, ambiguous, abstract and complex were discarded.

Stage: 3 Preliminary Administrations and Item Analysis

The preliminary step started by printing the 61 items in the form of a self-report interview schedule with a five-point scale form against

each item. The response categories for all the items were 5= Strongly Agree, 4= Agree, 3= Undecided, 2= Disagree, 1= Strongly Disagree. The ARSOP was administered to a represented sample (N= 300) consisting of rural and urban older persons. The older persons were interviewed their responses to each statement by answering one of the categories of “Agree to Disagree” using a 5 point scale. As all the items were positively worded, reverse scoring was not used. The total score of each respondent was obtained by adding his/her scores that he/she received for separate statements. The next step was that the answer sheets were arranged in the descending order of the total scores. From the 300 answer sheets, the top 27 per cent and the bottom 27 per cent were used for item selection.

Item Total Correlation

Item total correlations (Reproducibility Co-efficient) were calculated to establish the validity of the scale items. Basically, the value of correlation co-efficient indicates the strength and direction of relationship between each individual item of the scale and the total score on the scale. Specifically each Reproducibility Co-efficient indicates the ability of the individual item to predict the overall score. The researcher used this technique to standardize the scale. In item analysis, all the items of the test are studied individually to see as to what number of persons of a group or percentage has actually tried to respond or solve each item. The ‘t’ value was calculated through SPSS. Those items which showed higher ‘t’ value, i.e. more than 0.6 were selected for the final scale. Finally, out of the initially framed 61 items, 31 items were excluded and what remained was 30 items. Thus the final version of the ARSOP consisted of 30 items with 3 dimensions.

Stage: 4 Final Version of ARSOP

The final version of the scale was administered on the sample of 300 community dwelling older persons both from rural and urban areas (150 each). The scores were used for the purpose of estimating the reliability and validity of the scale. It can be observed from table (appendix) that the calculated value of correlation co-efficient for every item of activity were found to be significant at 0.0.1 level. The item total correlation was done for all the items in Activity Rating Scale for Older Persons and it yielded the values between 0.87 and 0.88

and the detail is included in the appendix. The 30 items of ARSOP retained for the final version and the details of reliability value of every item is given in the above table. The ARSOP consists of 30 statements and all of them are positively worded items and can be scored as 5, 4, 3, 2, 1. The score of ARSOP ranges from 30 to 150. The items in each domain are as follows:

| | | |
|------------------------|---|---|
| Physical activity | = | 1,2,5,9,12,13,19,24,29,30. |
| Psychological activity | = | 3,14,17,18,23,26. |
| Social activity | = | 4,6,7,8,10,11,15,16, 20,21,22,25,27,28. |

Psychometric properties of the scale

Reliability of the Scale

A scale is reliable when it consistently produces the same results when applied to the same sample. The reliability of the scale was determined by calculating reliability co-efficient on a sample of 300 community dwelling older persons. The tests of internal consistency were determined from the data in all subjects using Cronbach's alpha co-efficient, split half method. Guttman's α co-efficient estimates the internal consistency of items since α is a function of inter-item correlations and the number of items, the acceptable range of alpha is between 0.87-0.88. An estimate of split half reliability is obtained by correlating two pairs of scores obtained from equivalent values of a single test administered once. It is a useful measure of reliability when it is impractical or undesirable to assess reliability with two or to have two test administrations. The Guttman Split-Half Reliability test value for the scale is as follows. Activity Rating Scale for Older Persons Reliability co-efficient is 0.8683. The scores indicate high level of reliability. The researcher has used a few other methods of item analysis in order to establish the validity of the scale used in the present study.

Discriminant Analysis

Discriminant analysis is a method used to establish the discriminant power of each item of the scale (The ability of the item to discriminate between high scores and low scores.) Generally if the DP value is greater than 0.50, the item is considered to be good. The researcher used discriminant analysis to evaluate the importance of the

items used in the scale. The results are indicated in the below table. The discriminant power (DP) value proves that the scale has a very good importance with relation to the main variable of the scale and DP value ranges between 1.79 and 3.69.

Validity of the Scale

In addition to face validity, all the items were related to the variable under focus and the scale has high content validity. The content validity was determined by the experts and the items of the scale are found to be directly related to the concept of activity. It can be understood from the data that the scale on activity has 3 dimensions such as physical activity, psychological activity and social activity which are found to be significantly interrelated to each and every dimension.

Conclusion

The findings of the current study may provide useful conceptual information related to the areas of activity. One important consideration is that activity can be thought as a unified construct or collection of related constructs such as physical, psychological, social etc. The majority of items of the ARSOP was frequently endorsed and was correlated with ARSOP total scores. There are other limitations of the study that are deserved to be mentioned. The subjects in this study were drawn from community setting. Institution based studies are also needed to be obtained for more accurate assessment of the activity levels of older persons. A limitation of our assessment is factor analysis and criterion validity.

Appendix

Item Total Correlation for Activity Rating Scale for Older Persons

| <i>S. No</i> | <i>Items of Activity Rating Scale</i> | <i>Correlation</i> |
|--------------|---|--------------------|
| 1 | At this age, I am able to do my work by myself (eating, bathing, cleaning, washing) | 0.8767** |
| 2. | I am physically fit to find a job for myself | 0.8762** |
| 3. | I often recall significant events in my life | 0.8777** |
| 4. | I regularly attend prayer/religious meetings at this age | 0.8785** |
| 5. | I am able to refresh myself by doing exercise, yoga etc | 0.8739** |
| 6. | I visit my friends frequently | 0.8713** |
| 7. | I have good contacts with my relatives and neighbours | 0.8761** |
| 8. | I frequently go out with my relatives and neighbours | 0.8763** |
| 9. | I look after all my daily needs by myself | 0.8761** |
| 10. | I have contacts with my peers | 0.8727** |
| 11. | I am able to involve fully in social activities | 0.8748** |
| 12. | With increasing age I eat properly at regular intervals | 0.8774** |
| 13. | I am able to keep myself fully engaged with various activities even at this age | 0.8753** |
| 14. | I have no fear of death | 0.8824** |
| 15. | I am able to initiate acquaintances easily at this age also | 0.8733** |
| 16. | With increasing age my interest in people increases | 0.8747** |
| 17. | I want my children to be around me at all times | 0.8794** |
| 18. | I want to lead a happy life (with all facilities) in this age | 0.8725** |
| 19. | I do not need help from others for outdoor activities | 0.8789** |
| 20. | I frequently go out of my house by myself | 0.8764** |
| 21. | My relatives/friends visit me periodically | 0.8731** |
| 22. | My spouse and I go out frequently | 0.8768** |
| 23. | I am involved in decision making | 0.8750** |
| 24. | At this age, I am able to engage myself in part time jobs | 0.8765** |
| 25. | I attend social gatherings frequently | 0.8757** |
| 26. | I am happy to actively involved in family functions | 0.8758** |
| 27. | I participate in recreational activities regularly | 0.8726** |
| 28. | Nowadays, I go on pilgrimages frequently | 0.8754** |
| 29. | Even now I am as active as I were in my younger days | 0.8769** |
| 30. | I am able to maintain the skills and abilities as it were in my younger days | 0.8735** |

0.01** – High Significance

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Indian Journal of Gerontology

2014, Vol. 28, No. 3, pp. 357–371

Living Arrangements of Aged Women in Kamrup District of Assam

Mreeshi Agarwala and Anup Saikia

Department of Geography, North Eastern Hill University,
Shillong (North -East)

ABSTRACT

The primary objective of the present study was to delineate a profile of the aged women (60+) in Guwahati city and rural parts of Kamrup District of Assam and to explore their living arrangements in terms of the family type in which the elderly live, the type of compatibility they maintain with the other family members and the extent to which they adjust to changes. The primary data was collected by conducting a field survey of 200 aged women respondents, selected by using snow ball method of sampling, from Guwahati city and rural parts of Kamrup District. A 'pre-tested designed questionnaire' was used to collect data from these subjects. Focus group interviews were also conducted with the residents of old age home.

Keywords: Living arrangements, Elderly women, Inter-generational living

The world is undergoing a sea change in respect to the ways that we are leading our lives. In urban areas many factors such as the increased pace of life, lack of time for family, influence of the western way of leading life etc. have contributed to a paradigm shift in family values which were dear to the so called Indian way of life. All the above factors along with the ever increasing demand on land, growing

competition, inflation in the cost of food products and necessities, urban migration etc, have had a toll on the rural areas also. These factors have had a great influence on the way of life of each fragment of the family but in the entire melee, the elderly members of the family have become victims of isolation and they have been left to fend for themselves in difficult circumstances. To top it all the situation of the female elderly is even worse as they are left more vulnerable due to a host of factors including social stigmas.

In many developing countries, older persons have traditionally been cared for within the extended family network and by the community at large. There are various factors to which this phenomenon is attributable such as change in the family values and cultural practices as outcome of reduction in family size, rapid industrialization and urbanization. These factors have altered the social fabric of the family, directly affecting the security of its elderly members. There has been a paradigm shift in the attitudes of children in their duty towards their parents and the custom of caring for their elders. In rural communities, many younger family members leave their parental homes in search of employment in urban areas.

Government policies and programmes in many less developed and developing countries give low priority to the concerns of the elderly. Authorities generally expect families to continue to provide for the welfare of their elderly members. Social security systems provide limited coverage for only a small minority of older persons, mostly urban-based and relatively literate. In most of these countries, including India, the rural and semi-urban elderly represent the bulk of the elderly population who are left to fend for themselves despite the total or semi-absence of family and community support systems or elderly-friendly health care, social, and recreational services. Malnutrition and lack of adequate medical care is generally a perennial feature.

The elderly people are generally not found to be at the receiving end of actual cash transactions from their children or dependents for their discretionary personal spending. This phenomenon is found to hold true in all forms of living arrangements, whether co-resident or independent. Even in a co-residence structure, having a family which is necessarily supportive of the elderly is not always guaranteed. Even in

an independent family structure, the meager old age receipt of an elderly is at times being spent over the requirement of other members of the family who place precedence to their own personal requirements over that of the elderly person.

The primary objective of the study was to explore the living arrangements of elderly urban and rural women. In what respect the family type in which the elderly live, the type of compatibility they maintain with the other family members and the extent to which they adjust to changes in status within families influences the elderly's decision of living arrangement .

Methodology

Sample

Two hundred elderly women, sixty years and above, both from rural (N=80) and urban (N=120) areas were selected by snow ball method of sampling from rural parts of Kamrup (in proximity to Guwahati) and from Guwahati city respectively. At the time of sampling socio-economoc status, ethnic and religious variations, family structure, literacy level, marital statusof the respondents were also taken care off. Thirteen residents were interviewed from the old age home and a separate analysis of their living arrangements was done in addition to the total sample of two hundred respondents. Respondents of the day care home who were living with their families were included in the total sample of two hundred respondents.

Tools Used

A pre-tested questionnaire was used to elicit the responses of the elderly women of this study. Focused group interview was also used in the collection of information from the inmates of old age home.

Findings and Discussion

In the Kamrup District of Assam, with rapid urbanization an associated change has been found in social values and lifestyles which has brought in a transformation in the living arrangements of the people. A vast majority of them in Kamrup spend t living with adult children heir later life living with their children. Inter-generational living ('co-residency' or 'extended family living' or living with adult

children) is still found prevalent, more so in the rural areas, though socio-economic changes have gradually broken down the traditional family structure, and of late the number of households with elderly living alone has witnessed a constant rise. The following table shows the number of aged women respondents who co-reside with adult children (often the oldest son and his wife, or failing that, with another married son or an unmarried child). 77.50 per cent of urban elderly and 90 per cent of the rural elderly respondents co residing with adult children. The findings of present study indicate that the pattern of living with adult children is still widespread in both urban and rural Kamrup with the proportion being comparatively higher in rural.

Table 1
Living Arrangements of the Respondents

| <i>Living/ Living with</i> | <i>Rural</i> | | <i>Urban</i> | |
|--------------------------------|---------------------------|-------------------|---------------------------|-------------------|
| | <i>No. of Respondents</i> | <i>Percentage</i> | <i>No. of Respondents</i> | <i>Percentage</i> |
| Alone | 4 | 5.00 | 13 | 10.83 |
| Spouse | 1 | 1.25 | 13 | 10.83 |
| Adult children | 72 | 90.00 | 93 | 77.50 |
| Relatives | 3 | 3.75 | 1 | 0.83 |
| Total | 80 | 100.00 | 120 | 100.00 |

Gender of the Co-resident Child

The gender of the co-resident adult child is also an important component for analysis of the living arrangements of aged women respondents. Research reveals that in majority of the developing countries, co residence with male offspring predominates (Bongaarts and Zimmer, 2001). The Chinese and Japanese system appears to be similar (Izuhara, 2000). Living with a married daughter's family is a less preferred alternative. In the patrilineal system which is prevalent in Assam, it is the eldest son who is given a superior position as the future head of the household, and daughters are considered to be temporary family members who share the family home till the time of their marriage. Further, it is clearly the norm for older adults to be financially supported by sons and cared for by daughter-in-laws.

Table 2
Respondents Residing Patterns

| <i>Living</i> | <i>Rural</i> | | <i>Urban</i> | |
|----------------------------------|---------------------------|-------------------|---------------------------|-------------------|
| | <i>No. of Respondents</i> | <i>Percentage</i> | <i>No. of Respondents</i> | <i>Percentage</i> |
| with son and his extended family | 49 | 61.25 | 66 | 55.00 |
| with unmarried son and daughters | 21 | 26.25 | 25 | 20.83 |
| with married daughter | 2 | 2.50 | 2 | 1.67 |
| with spouse | 1 | 1.25 | 13 | 10.83 |
| with relatives | 3 | 3.75 | 1 | 0.83 |
| alone | 4 | 5.00 | 13 | 10.83 |
| Total | 80 | 100.00 | 120 | 100.00 |

From Table 2 it can be seen that 55 per cent of the urban aged and 61.25 per cent of the rural aged respondents reside with their married sons (often the oldest son and his wife, or failing that, with another married son based on compatibility with family members). The practice of residing with married daughters is negligible.

Factors Influencing Aged Women to Reside Alone in Urban Areas

Though cases of extended families living were found to be higher, a significant 10.83 per cent of elderly women were found living alone. Major emphasis was laid during the research process to investigate reasons why these women chose or were compelled to live independently.

While analyzing the reasons for aged women respondents staying alone, widowhood appears to be one of the major reasons. It can be observed that of the thirteen respondents, who were residing alone, ten respondents were widows, two respondents had got separated from their husbands and one of the respondents was unmarried (Table 3). Living alone is usually due to widowhood, childlessness or migration of children. Large numbers of women who are single, either widowed or divorced are more vulnerable, receiving only a paltry part of the entitlements of their spouse, and in some instances were even lacking acceptance in the community or family (Lette and Jacobs, 2002).

Table 3
Reason for Elderly Women Choosing to Live Alone in Kamrup Metro

| S. No. | Age | Marital Status | Education | Major Occupation During Lifetime | No. of Living Children | | Reason for Living Alone |
|--------|-----|----------------|---------------|----------------------------------|------------------------|---|--|
| | | | | | M | F | |
| 1 | 70 | Widow | Uneducated | Housewife | 2 | 2 | Incompatibility with family members |
| 2 | 68 | Widow | Post Graduate | Teacher | 2 | 2 | Children residing abroad |
| 3 | 74 | Widow | Matriculate | Housewife | 3 | 2 | Self dependent and financially independent |
| 4 | 68 | Widow | Uneducated | Housewife | 1 | 3 | Compatibility issues with daughter-in-law |
| 5 | 75 | Widow | Primary | Housewife | 2 | 3 | Children reside elsewhere. Wants to be independent |
| 6 | 72 | Widow | Uneducated | Housewife | 1 | | Son is not being able to support financially |
| 7 | 60 | Unmarried | Graduate | Business | | | Wishes to be independent |
| 8 | 74 | Widow | Matriculate | Housewife | 1 | 2 | Incompatibility with daughter-in-law. Financially self dependent |
| 9 | 76 | Widow | Graduate | Housewife | 2 | | Children reside elsewhere |
| 10 | 74 | Widow | Matriculate | Housewife | 4 | 1 | Separate living arrangement. Children reside nearby |
| 11 | 72 | Divorced | Uneducated | Housewife | 2 | 1 | Prefers to be independent |
| 12 | 63 | Widow | Graduate | Housewife | 1 | 1 | Son resides abroad |
| 13 | 62 | Separated | Graduate | Housewife | 1 | 1 | Separated from her spouse and children reside abroad |

Migration of children to foreign countries and other cities in search of better employment opportunities has also made living arrangements difficult for the single elderly women in Kamrup Metro. Allowing parents to live in old age homes was found to draw criticism

from the family network and society at large. In all the four cases where the widows were found residing alone in apartments, adequate facilities were made available to them. They were receiving pensions and were financially supported by their children. They however faced tremendous difficulty in performing their instrumental activities of daily living. They were found to be heavily relying on their domestic helpers and neighbors for support.

The fear of losing their independence with advancing age and the changing role from that of a household head to a dependent made some of the respondents to seek a separate living.

The following five case studies through some light on the reasons for living alone. The identity of the respondents is being kept hidden.

S.Y (68) felt that her co-resident son's wife had modern views and attitudes and faced difficulty in performing domestic tasks together. She was being verbally abused by her on discriminatory issues. Her son was not willing to intervene in their conflict. She had no alternative but to move to a separate house not far away from her son's house and was receiving occasional support from him.

K.R (75)'s son and his wife were residing abroad. Her daughter was married and was residing in a joint family in the same town. She did not want to reside with her son abroad because she felt that they will have less time for him with their busy working schedule. She expressed love and affinity for her own land and felt much closer to her daughter who was caring and supportive in many ways.

G.S (62) separated from her spouse thirty years after their marriage. Her daughter and son resided abroad and were providing her financial support. She resided independently in a private flat and was unwilling to burden the younger generation with the responsibilities of care in old age. She further stated that living independently allowed her to avoid conflicts with her husband and maintain her individuality.

A.R (60) decided to remain unmarried and nurse her widowed mother who was suffering from cancer. Soon after her mother's death she joined her family business and was providing every support to her younger sister, who after getting married joined her husband's family. She moved to a private flat which made it convenient for her to

continue earning. Her only support was her sister whom she believed would provide care in her last days.

B.R (68) was a senior teacher, and after retirement, she decided to reside independently. When her husband expired she decided to co-reside with her younger son and his family. Her experience with co-residency with her younger son was not successful and she feared to experience the same with her elder son. She was of the opinion that with the longevity of the general people showing phenomenal improvement during the recent decades, it was the primary duty of the government of a welfare State to provide amenities to the elderly section of the society, and especially the helpless widows.

Factors Influencing Living Arrangement

During the course of the study it was found that there were many factors influencing the living arrangement of the aged women respondents. One of the significant factors found in urban area was the level of education of the elderly.

In research conducted by Chakraborti (2004) on Greying of India an inverse relationship has been found between the educational levels of the elderly and their living arrangements with adult children. In situations where levels of education are higher, older adults live in small households, with fewer children and other adults, and are more likely to be alone. The reason for this choice of living were (a) older adults with higher levels of schooling have more skills and are therefore generally able to provide better care for themselves; (b) the better-educated older adults have a stronger preference for privacy than the poor and less educated. Conversely, where education is lower, older adults own fewer resources. They are, therefore, more dependent on adult children, especially the male offspring, who are more likely to control household resources than female members, who in general move to another house after marriage.

Here, we can analyse the living arrangement of respondents with their level of education. For this purpose, first we have to go through Table 4, where level of education of the respondents has been discussed.

Table 4
Level of Education of Respondents

| <i>Education Level</i> | <i>Rural</i> | | <i>Urban</i> | |
|------------------------|---------------------------|-------------------|---------------------------|-------------------|
| | <i>No. of Respondents</i> | <i>Percentage</i> | <i>No. of Respondents</i> | <i>Percentage</i> |
| Read & Write only | 9 | 11.25 | 15 | 12.50 |
| Primary Level | 23 | 28.75 | 48 | 40.00 |
| Higher Level | 6 | 7.50 | 46 | 38.33 |
| Uneducated | 42 | 52.50 | 11 | 9.17 |
| Total | 80 | 100.00 | 120 | 100.00 |

Source: Field survey 2008-2009.

From Table 4 it can be found out that out of the 120 urban respondents, 48 have received primary education, 46 respondents have received higher education, 15 respondents have not received any formal education but can manage to read and write the minimum essential and 11 respondents are illiterate. Of the total 120 urban respondents 78.33 per cent of the respondents are educated which signifies that the level of education among the urban respondents is high, with 38.33 per cent respondents having received higher education.

Table 5
Level of Education of Urban Respondents and their Living Arrangements

| <i>Living</i> | <i>Level of education</i> | | | | <i>Total</i> |
|----------------------------------|---------------------------|---------------|----------------------------|-------------------|--------------|
| | <i>Primary</i> | <i>Higher</i> | <i>Read and write only</i> | <i>Uneducated</i> | |
| with son and his extended family | 31 | 15 | 12 | 8 | 66 |
| with unmarried son and daughters | 8 | 15 | 1 | 1 | 25 |
| with married daughter | 1 | 1 | 0 | 0 | 2 |
| with spouse only | 3 | 10 | 0 | 0 | 13 |
| with relatives | 1 | 0 | 0 | 0 | 1 |
| alone | 4 | 5 | 2 | 2 | 13 |
| Total | 48 | 46 | 15 | 11 | 120 |

Source: Field survey, 2008-2009.

A similar inverse relationship has been found between the educational levels of the elderly and their living arrangements in the urban context. In situations where levels of education are higher, older adults prefer to live separately in small households with their spouse only, or with their unmarried children. The preference to live with a married son or daughter is less and later they get separated and are more likely to be alone. From Table 5 it can be seen that of the total 46 urban respondents who have received higher education only 15 respondents were co-residing with their married sons and the extended family.

With the lack of familial support, the elderly resort to stay in old age homes in case they are economically affordable (Dandekar, 1993; Shah, 1993 and Rajan *et al.*, 1995 as cited in Rajan *et al.*, 1999). A survey of old age homes in Maharashtra (Dandekar, 1993; as cited in Rajan *et al.* 1999) Gujrat (Shah, 1993; as cited in Rajan *et al.* 1999) and Meghalaya (Swier, 2013) reveals the prime reason for the aged moving into old age homes is the lack of proper care for them within the family setup. The inmates of the old age homes expressed satisfaction with their stay in old age homes compared to their own homes, giving one the impression that old age homes seem to be serving as alternative care-givers to those who are unable to obtain familial care.

In order to analyze the factor whether old age homes are serving as alternative care-givers a survey was conducted in an old age home. During the survey process it was found that there was only one old age home namely '*Amar Ghar*' in the entire Kamrup District of Assam. A brief description of the same has been given in the following paragraph and that of '*Prashantilo*' a day care home for the elderly female has been discussed subsequently.

'Amar Ghar' An Old Age Home

The foundation of Ambikagiri Memorial Old Age Home '*Amar Ghar*' located at Patharquarry, Guwahati was laid on 18th December 2001 and was formally inaugurated on 18th May, 2003. It was initially started with 2 residents and gradually the number increased to 15 in 2007. During 2009-2010 the numbers of residents were 20. A few destitute men and women were also provided short stay during the year beside a few elderly guests.

Perceptions of the Elderly Female Residents of the Old Age Home

A focus group interview was conducted to understand the perceptions of the elderly female residents of the old age home on the following aspects: advantages and disadvantages of intergenerational living, preferred living arrangements, advantages of being in an old age home, and their perception of the status of the elderly in rural Kamrup.

Table 6
Demographic, Social and Economic Profile of the Residents of the Old Age Home

| S. No. | Age | Marital Status | Education | Major occupation during lifetime | No. of living children | | Financial Support (For stay in old age home) |
|--------|-----|----------------|-------------|----------------------------------|------------------------|---|--|
| | | | | | M | F | |
| 1. | 72 | Widow | Uneducated | Housewife | 1 | 1 | Sister |
| 2. | 60 | Spinster | Graduate | Family business | | | Brother |
| 3. | 74 | Widow | Matriculate | Housewife | 2 | 2 | Son and family pension |
| 4. | 87 | Widow | Graduate | Service | 2 | | Son and self pension |
| 5. | 72 | Widow | Matriculate | Housewife | 1 | | Son and family pension |
| 6. | 75 | Widow | Uneducated | Housewife | | | Family pension |
| 7. | 78 | Widow | Graduate | Housewife | 1 | 2 | Daughter and family pension |
| 8. | 60 | Widow | Matriculate | Housewife | 1 | 1 | Family pension |
| 9. | 65 | Widow | Uneducated | Housewife | 1 | 1 | Son |
| 10. | 74 | Widow | Graduate | Teacher | 1 | | Self and family pension |
| 11. | 69 | Widow | Uneducated | Housewife | 2 | 1 | Family pension |
| 12. | 80 | Widow | Uneducated | Housewife | 1 | | Family pension |
| 13. | 77 | Widow | Graduate | Writer and Housewife | 1 | 1 | Family and literary pension |

Of the 18 residents who were currently staying in the old age home 15 were female and 3 were male residents. A detailed personal interview and a focus group interview were conducted with the aged female residents. Of the three male residents one had returned back to his family because he was not keeping well. The other two male residents did not participate in the discussions. Of the 15 female

respondents, 13 participated in the discussion as mentioned in Table 6 above.

On being questioned about their opinion on the changes taking place regarding the discontinuity of the joint family system, majority of the respondents considered joint family to be a better option as compared to a nuclear family. They opined that in spite of certain problems involved in intergenerational living, the benefits accruing there from outweighed the problem. The reason associated for the same were:

1. A multigenerational family offers emotional support to both generations.
2. In a multigenerational family the religious and cultural traditions and values are preserved by way of being passed from one generation to the next.
3. The elderly members of the family often provide domestic support like participation in household chores like cooking, baby-sitting etc.
4. At times they were found to be contributing to the family expenditure by sharing the pension and other retirement emoluments.

On being asked the prime reason for the aged shifting to old age home, the reason assigned by the majority of the respondents were:

1. Lack of proper care within family setup has made old age home a better alternative. With increasing level of education among elders, new demands for better standards of care and social security have emerged. The old age homes are serving as alternative care-givers to those who are unable to obtain familial
2. Internal problems arising from the multigenerational mode of living, conflict between mother and daughter-in-law, differences with regard to food habits, basic differences in the way of behaving have resulted into the elderly seeking an optional living arrangement.
3. Increasing participation of women in employment activities has resulted in conflicting demand and increase in stress level in women. Many women bear the burden of caring for children, the household, the elderly, their careers and themselves. As an

outcome of these domestic and emotional stress the women is left with very little tolerance for the elderly.

4. Co-residence is not always a guarantee for effective care. Many older people live with their families in a state of material and emotional neglect. As such living in an old age homes was found to be a better alternative to those who are unable to obtain care from within their family.

While comparing the status of the elderly of rural Kamrup to that in urban, the residents of the old age home found the condition to be less vulnerable in rural area mainly because of the following reasons:

1. The elderly in rural area live with their spouse/children and other relatives, and the neighbors and society at large is helpful.
2. The elderly are still engaged in one or the other form of income generating activity, which benefits them financially apart from being physically and mentally helpful.
3. A great majority of elders are treated with respect and enjoy a better position in the rural society as compared to urban residents where the respect towards elders has eroded considerably with the younger generation on account of the great disparity in the level of education between the elderly and that of the new generation.
4. Participation in social, household and religious activities is more in rural area where staying close with family members, neighbors and community groups brings happiness. In older ages this is most desirable since older people are more likely to have lost loved ones and are thus more vulnerable to isolation and loneliness. This results in decline their physical and mental abilities and an increase in health damaging behaviours.

While discussing advantages of staying in an old age home, the elderly expressed satisfaction, citing the following:

1. They had the company of friends of their same age group to share their feelings.
2. The food served was timely, healthy and nutritious. One of the elderly stated that she was always served cold rice for lunch by her daughter-in-law which she despised.

3. They had fewer restrictions on their movements in the old age home. A few of the respondents stated that they had a number of restrictions when they were staying with their offspring and their family.
4. One of the elderly was a well known writer and was also availing writer's pension along with family pension. A few of her books were published during her stay in the old age home. She was not being able to concentrate on her writing when she was at her son's place as there was no separate arrangement and the grandchildren were constantly disturbing. As such she found more privacy in the old age home.

'Prashantiloy' – A Day Care Home

The process of ageing is a biological reality, a universal phenomenon that is dynamic and beyond human control. Old age also brings forth a myriad of health problems for every individual to deal with and counter at a time when their finance and physical powers are in a state of gradual decline. The elders therefore need a well structured social security system that would pave the way in making their lives simpler, trouble free and thus allow them to concentrate on things that would help them in sustaining a quality life. Keeping in mind this notion the owner of the day care house took the noble task of providing day care services where the elderly females could share some moments of happiness. There were 18 members in the day care house. The selection of the president or the head member was done on a rotational basis. A number of activities including prayer, yoga in the form of pranayam and meditation, regular health check up on weekly basis, group discussions on relevant topics were held thereby providing them some succor from their day to day activities. The respondents were of the opinion that they have become physically and mentally active after them joining the day care home. A few of the respondents were of the opinion that since they have less time for themselves in a joint family setup, they chose to join the day care home where they could find some time for themselves. Others were of the opinion that they felt lonely and left out many a times because their children were otherwise too occupied and seldom were available

for them. By joining the daycare home they could share some quality time with their fellow elderly.

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Indian Journal of Gerontology

2014, Vol. 28, No. 3, pp. 372–384

Perceived Social Support Among Institutionalized and Non-Institutionalized Elderly in Chandigarh (India)

Nidhi Jaswal and Sukhbir Singh

School of public health, Postgraduate Institute of Medical Education and Research, Chandigarh

ABSTRACT

The present study aimed to assess and compare the perceived social support of the institutionalized and the non-institutionalized elderly, and by gender in the Union Territory of Chandigarh. A total of 337 elderly (200 non-institutionalized and 137 institutionalized) were studied. Both quantitative and qualitative tools of data collection were used to assess and compare coping strategies of elderly. The social support of the respondents was assessed by using the Social Support Scale. Nearly half (47%) of non-institutionalized elderly were having high level of perceived social support against 41 per cent of the institutionalized elderly. Contrary to it, 59 per cent of institutionalized elderly were having low perceived social support as compared to 51 per cent of the non-institutionalized ones. More males (53.3%) as compared to females (37.2%) were high on their perceived social support level. The association of perceived social support with education was found to be highly significant statistically among the non-institutionalized elderly ($p < .001$). Formation of senior citizen clubs comprising of both non-institutionalized and institutionalized elderly should be encouraged. A community-based model for social support may be promoted to improve the well being of both institutionalised and non-institutionalised elderly.

Keywords: Perceived social support, Institutionalized and non-institutionalized elderly

Social support is an indication of how much the individual feels cared, loved, esteemed, valued, and belonging to a network of communication and mutual obligation. Social Support of a person portrays how social environment, or the support from significant others can have an impact on an individual's well-being. Therefore, social support to an individual can be actual or perceived; and there is considerable evidence from previous research that subjective assessment of social support are more persistently and more powerfully related to health and well being than are objective measures (Faber and Wasserman, 2002; Chan and Rance, 2005).

Social support has proved to promote successful ageing (Fillit *et al.*, 2002; Fratiglioni *et al.*, 2004). It has an important implication for the well being and welfare of the aged. In this regard, the aged in India had been fortunate in the sense that aged person hold a prestigious position in the family and society. But with the technological advancement and urbanization they are feeling isolated, neglected and are left uncared at the mercy of servants (Fratiglioni *et al.*, 2000; Gow *et al.*, 2007; Hendrie *et al.*, 2006). They feel their life and money is not safe. Studies have shown that social support significantly affects life satisfaction, self-esteem and well-being, quality of life and health of aged (Newsom and Schulz, 1996).

The present study was undertaken with the objectives to study the socio-demographic profile of the elderly, to assess and compare the perceived social support of the institutionalized and the non-institutionalized elderly in low resource setting.

Methodology

Sample

The sample size consisted of 337 elderly of Chandigarh. Out of these 337 respondents, 200 were non-institutionalized (122 males and 78 females) elderly and 137 were institutionalized (73 males and 64 females) in the age group of 60–80 years. For selecting the non-institutionalized elderly, Census (2001) data of Chandigarh was considered. The number of elderly within the age-group of 60–80 years was 23,000 in Chandigarh (urban and rural). Excluding the elderly

with any psychiatric morbidity, physical disability, severe chronic health problems; unmarried elderly and the elderly belonging to rural area, the sample as of 200 non-institutionalized elderly was selected for the present study. In case of the institutionalized elderly, the list of inmates residing in the old age homes of Chandigarh was collected from the Help Age India Directory 2007 and the Social Welfare Department, Chandigarh. Institutionalized elderly consisted of 137 inmates residing in all 6 old age homes of Chandigarh. All the 137 inmates were selected as the respondents for the study, hence no sampling was undertaken.

Tools Used

'Social Support Scale' (Nehra *et al.*, 1996) and General Information Schedule. This schedule was consisted of open-ended questions. Consent was taken from each subject for his/her voluntary participation in the present research study.

Social Support Scale is an 18 item-scale modified and adapted for Indian Population from the Pollock and Harris (1983) scale of Social Support. This scale is used to assess or measure how social environment, or the support from significant others can have an impact on an individual's well-being. The items are rated on a 4 point likert scale from "almost always = 4" or to "almost never = 1". Higher the score more will be the perceived social support. The test-retest reliability of this scale is 0.59 which is significant at .01 level.

Results

Table 1 presented the socio-demographic profile of the non-institutionalized and institutionalized elderly. Two-third (61%) of the non-institutionalized elderly were males and 39 per cent elderly were females. Among the institutionalized elderly, 53. per cent and 46.7 per cent respondents were males and females, respectively (Table 1). Age-wise distribution of the elderly showed that two-fifth (44.5%) of the non-institutionalized elderly and 39.4 per cent of the institutionalized elderly belonged to the age-group of 61-65 years. All non-institutionalized elderly were married but 35 per cent and 29.2 per cent of the institutionalized respondents were widowers and widows,

respectively. In terms of educational qualification, 33.5 per cent of non-institutionalized were graduates and 36.5 per cent of the institutionalized elderly were matriculated (Table 1).

Table 1
Socio-demographic Characteristics of the Elderly in Chandigarh Union Territory

| <i>Variables</i> | <i>Non-Institutionalized (N=200)</i> | <i>Institutionalized (N=137)</i> | <i>p-value</i> |
|---------------------------------------|--------------------------------------|----------------------------------|----------------|
| Gender | | | |
| Males | 122 (61.0) | 73 (53.3) | .234 |
| Females | 78 (39.0) | 64 (46.7) | |
| Age group | | | |
| 60 years | 19 (09.5) | 10 (07.3) | .159 |
| 61-65 years | 89 (44.5) | 54 (39.4) | |
| 66-70 years | 55 (27.5) | 43 (31.4) | |
| 71-75 years | 30 (15.0) | 18 (13.1) | |
| 76-80 years | 7 (03.5) | 12 (08.8) | |
| Marital Status | | | |
| Unmarried | - | 5 (03.6) | - |
| Married | 200 (100.0) | 34 (24.8) | |
| Widow | - | 40 (29.2) | |
| Widower | - | 48 (35.0) | |
| Divorced | - | 10 (07.3) | |
| Caste | | | |
| General caste | 166 (83.0) | 83 (60.6) | - |
| Other Backward Class | 34 (17.0) | 41 (29.9) | |
| Scheduled Caste | - | 13 (09.5) | |
| Scheduled Tribe | - | - | |
| Educational Level | | | |
| Illiterate | 17 (08.5) | 9 (06.6) | .432 |
| Up to primary | 17 (08.5) | 16 (11.7) | |
| Matriculation | 54 (27.0) | 50 (36.5) | |
| High school | 19 (09.5) | 8 (05.8) | |
| Graduation | 67 (33.5) | 39 (28.5) | |
| Post graduation | 15 (07.5) | 9 (06.6) | |
| Other | 11 (05.5) | 6 (04.4) | |
| Figures in parenthesis are percentage | | | |

Perceived social support was measured at two levels: high and low. High perceived social support meant that an individual feels very much cared, loved, esteemed and valued by his/her social environment whereas an individual having low perceived social support do not feel like being cared, loved and supported by others. Table 2 showed the comparative analysis of perceived social support among institutionalized and non-institutionalized elderly of Chandigarh Union Territory. Nearly half (47%) of non-institutionalized elderly were having high level of perceived social support against 41 per cent of the institutionalized elderly. Contrary to it, 59 per cent of institutionalized elderly were having low perceived social support as compared to 51 per cent of the non-institutionalized ones. The association of perceived social support with education was found to be highly significant statistically among the non-institutionalized elderly ($p < .001$).

Table 2
*Perceived Social Support of the Non-institutionalized
and Institutionalized Elderly*

| <i>Perceived Social Support</i> | <i>N-Ins.</i> | <i>Ins.</i> |
|---------------------------------|---------------|-------------|
| High | 94 (47.0) | 56 (41.0) |
| Low | 106 (53.0) | 81 (59.0) |
| Total | 200 (100.0) | 137 (100.0) |

The gender differences in relation to perceived social support were assessed and compared and are presented in Table 3. Data shows that more than half (53.3%) males as compared to 37.2 per cent females were having high level of perceived social support among non-institutionalized elderly. More females (62.8%) as compared to males (46.7%) were low on their perceived social support level. The dependency of social support on gender was found to be statistically significant ($p < .001$).

Among the institutionalized elderly, it was found that 42.5 per cent males as compared to 39.1 per cent females were having high level of perceived social support. Contrary to it, 60.9 per cent females against 57.5 per cent males were low on their social support level (Table 3).

Table 3
Gender Differences in Social Support Among the Non-institutionalized and Institutionalized Elderly

| Social Support | N-Ins. | | Ins. | |
|----------------|-------------|------------|------------|------------|
| | Males | Females | Males | Females |
| High | 65 (53.3) | 29 (37.2) | 31 (42.5) | 25 (39.1) |
| Low | 57 (46.7) | 49 (62.8) | 42 (57.5) | 39 (60.9) |
| Total | 122 (100.0) | 78 (100.0) | 73 (100.0) | 64 (100.0) |

Figures in parenthesis are percentage.

Subjective Perception about Social Support

In order to elicit in-depth information regarding the perception of the elderly about social support, the type of social support they receive and from whom did they get social support, open-ended questions were asked.

Non-institutionalized elderly: They were asked ‘What do you understand by the term social support?’ Various responses were given. Few were reported as ‘*Koi naa koi aapkee madad ke liye hameshaa uplabadha hai*’ (somebody is always there to help you); ‘*hamaari baat ko dhyaan se sunne valaa koi hai*’ (Somebody is there to listen to us carefully); ‘*kisi kaa saath honaa*’ (companionship); ‘*bure waqt me agar koi paiso ki madad kar de*’ (if somebody gives money when needed); ‘*ghar vaalo ya baahar valo kaa saath honaa*’ (support of family members or others such as neighbours); ‘*vo log jin par aap bharosaa kar sakte ho*’ (The people on whom you trust or rely upon).

The authors had tried to condense the above mentioned responses into one single definition of social support: “Social Support is any, financial, psychological or emotional support, not necessarily provided only at a time of need by the family members, neighbours or any member of the society”.

One of the Respondents Narrated

“Is umar me sahaare ki zarurat to rehti hai. Par aaj ke waqt me buzurgon ko puchhataa kaun hai. Ham to bus sahaare ki aas hi rakh sakte hai”.

(There is always a need of support in this age. But who cares for elderly during the present era. We could only hope for the support).

The above described narrative explicitly projects that with changing times the role and status which earlier enjoyed by the elderly in society has lost its sheen. Disheartened at the situation of being lonely and rejected, it is only hope that gives them some semblance of 'hanging on'.

Marital status was found to be a significant predictor of social support in the present study. Out of 200 respondents, 167 (83.5%) respondents said that their spouse is the only source of social support for them.

Case Profile 3

Parkash Singh (name changed), a 64-year old non-institutionalized male said "My wife has given me the maximum social support in life. Whatever I asked, she provided me the same. She had always put aside her personal needs and benefits, just for my sake. I owe my success to her."

This case depicted the value attached to the presence and importance of one significant person in someone's life. Old age is that phase of life where one's own parents are most often not alive; children have their own life to live. The heady and hectic life comes to a standstill. Presence of a spouse at such juncture gives a sense of belongingness, being cared for. Of all the social networks that a person forms in one's lifetime, presence of one's spouse is of primary significance as core provider of social support.

In cases where the caregivers were working or living apart, the elderly were found to be spending most of their daytime with their friends and neighbours. Social support occurred in terms of information and emotional support. Many respondents from the non-institutionalized category were found to be the members of the senior citizens' club or any other religious clubs. Some of them were found to be working even after their retirement. These findings may be associated with the high level of social support among the non-institutionalized respondents. One of the respondents narrated:

“Ye senior citizens’ club logon ke saath mel-jol banaaye rakhne kaa bahut achhaa madhyam hai. The participation in the activities keeps us informed and updated about the happenings of the world and we also remain active.”

(These senior citizen clubs are a good source of meeting new people and building relationships).

Institutionalized elderly: Majority of the institutionalized respondents said that social support means a companionship (*saath*) which is very important to lead a smooth and healthy life. A person feels isolated without any social support. One of the respondents said,

“Jab sabara dene vaalo ne hi hame ghar se nikaal diya, to ab sahaare ki umeed kis se kare. Naa ghar rahaa, naa bachho ka saath aur na hi rishtedaar. Bas yahaan par rehne vale log hi ab sahara hain.”

(When caregivers themselves threw us out of our homes, whom to expect for providing support. We neither have home nor children and relatives. Now, the residents of this old age home are the only support).

The narrative presents the extent of disenchantment of the elderly from everyone around them. It projects a feeling of not only loneliness but also loss and rejection. It also projects that acceptance of this loss and rejection becomes a mechanism of surviving and ‘living with the situation’.

Out of 137 institutionalized respondents, 40 were widows, 48 were widowers and 10 were divorced. That means 71.53 per cent of the respondents did not have the support of their spouses. Few spouseless respondents stated that “We would not have been in this old age home, if they were alive or with us. But nothing is in their hands. Their fate has already been written by the almighty. Still, they did not have any grudges against anyone. They believe that God is a great support for them.”

Case Profile 4

Kamlesh Kumari (name changed), a 75 year old widow said that “We are just puppets in the hands of God. Wherever He takes us, we move towards that way only. I still remember the day when my son threw me out of my house. I could see tears in his eyes when he

asked me to go. Actually, his wife (my daughter-in-law) wanted to live alone. Their privacy was being hampered due to my presence. After leaving the house, I wandered here and there, took shelter in temples for few days. Then somebody informed me about this old age home. Luckily or unluckily, I got a place to eat, drink and sleep but there is no inner peace. It is very difficult to pass time alone. Even one second feels like one year. I am waiting for the time when I will die.”

Case Profile 5

Prem Singh (name changed), an 80 year old institutionalized widower, narrated that his sons themselves got him admitted to this old age home around 8 years ago. He never mourned their act. Else, he has always taken a life in a positive manner and accepted it the way it comes. He usually remains happy as he has found new friends. They are more supportive even than his family members. He can share everything with them, his secrets, food, drinks and even his sorrows.

The two cases above project very contrasting situations. Where in one case the rejection and loss of one's most close relation takes toll on will to live, the second case projects the zest and zeal to live and embrace whatever the situation with open arms.

But some of the respondents have found very good and supporting friends in the institutions where they were residing. It was found that if one resident of the old age home cried, then others always consoled and supported him/her. The management team of the old age homes take care of all the basic needs (hunger, thirst, shelter) of the residents. Financial assistance was also provided in those old age homes, being run by the public sectors. The present findings indicate that friends and relatives constitute a dominant part of social networks and are often important sources of support for the aged.

Discussion

The social networks that an individual develops over a period of lifetime are all a source of social support at some degree. These include one's immediate family, friends, neighbours, colleagues, etc., The concept of social support is difficult to measure meaningfully, and can

be a cause or effect. In case of non-institutionalized elderly, one socio-demographic factor namely education was found to be significantly associated with perceived social support. The elderly who have a higher education are more likely to have consistently positive perceptions about available support (Cornman *et al.*, 2001). Similarly, another study found that education had direct influence on health-promoting behaviours, through social support among American older adults (Suwonnarop, 2002).

The results of the present study that non-institutional elders' level of perceived social support was high are consistent with the previous studies (Noisuk, 2002; Phokruprasert, 2002; Polinn *et al.*, 2005). It was indicated in a study that social support among the elderly and their families is an obligation; social support occurs in terms of caring for parents and supports all kinds of family activities (Choowattanpakorn, 1999).

One of the most significant and primary source of social support at stage of old age is a spouse. The researchers had used marital status as one of the measures of social support. Marriage is a social union or legal contract between people that creates kinship. It is an institution in which interpersonal relationships, usually intimate and general, are acknowledged in a variety of ways, depending on the culture or subculture in which it is found. Husband and wife are a source of social support to each other. Having a partner keeps the elderly away from living alone, and feeling lonely can be expected whenever the relationships of attachment are lost (Kim, 1999). Earlier studies have shown that spouse could be an important source of support (Seeman and Berkman, 1988) and marriage affects the well-being of both men and women (Spitz and Ward, 2000). Similar observations were made by the researcher in the present research as well, where spouse was the primary provider of social support. Case studies have been given to support the significance of social support of a spouse for fulfilled life experience.

The researchers have found that living alone had a negative effect on perceived social support. Other studies have also reported a negative association between social support and loneliness (Kim and Baik, 2002; Steverink *et al.*, 2001).

In some of the cases presented in the present study where caregivers were working or living apart, the elderly were found to be spending most of their daytime with their friends and neighbours. Similar observation has been indicated in few studies which say that older individuals in a strong and well-developed neighborhood and community usually receive ongoing support from a variety of sources. Activities and services available in the community provide meaning and stimulation to daily life, while also fulfilling basic personal and household needs (Forschner, E., 1992; Sritanyarat *et al.*, 2002).

Conclusion

Non-institutionalized elderly had high level of perceived social support as compared to the institutionalized elderly. So, formation of senior citizen clubs comprising of both non-institutionalized and institutionalized elderly should be encouraged. A community-based model for social support may be promoted in Chandigarh. Young generation should recognize that care for the elderly is one of the greatest duties that they have.

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Indian Journal of Gerontology

2014, Vol. 28, No. 3, pp. 385–400

Economic Support to the Elderly Widows for Medicare: A Study in an Urban Setting of Tamil Nadu

Neelu Singh

Department of Sociology and Population Studies,
Bharathiar University, Coimbatore (Tamil Nadu)

ABSTRACT

Most of the elderly are economically dependent on their children or on care givers for several aspects of their life including health and other welfare issues. Keeping in view this issue an attempt was made in this study to understand about receiving (seeking) of economic support by 310 elderly widows of Coimbatore city, (Tamil Nadu) for their medical expenditure to various chronic morbidities. The findings of this study revealed that on the whole, slightly less than three-fifths (58%) of the elderly women were receiving economic support for their medicare from their children. Elderly widows who used to receive economic support for medicare to chronic morbidities from children were significantly higher among those who belonged to forward castes as well as families in which one or more earning members are there and two or more surviving sons available than their counterparts. Elderly Widows who were old-old, educated up to middle school and belonged to the households of higher Standard of Living Index are receiving economic support for medicare from children to a higher extent than those who are young-old, illiterates and lower Standard of Living Index. Conversely, receiving of economic support for medicare from children by widows were much lower among those elderly who were 'living alone' as well as participating in some

income generating activities and earning some personal monthly income as against their respective counterparts. Based on these findings suitable policy implications were proposed.

Keywords: Chronic Morbidities, Medicare, Economic Support, Differentials.

Ageing of population has become one of the major social problems during 21st century, which has led mainly to economic dependency upon the family members. The size of the old age population and the speed of population ageing vary across the regions. In Indian context, generally, men or women engaged in different works related to the formal sector are supposed to retire at the age of 58 or 60 years of age depending upon their occupational position and type of establishment in which they work. For such persons mostly social security policies like pension, gratuity, etc., benefits would be provided after retirement from their services. However, how effectively they will keep up that money for maintaining a decent life during old age is a million dollar question? Conversely, the situation would be entirely different for those who work in the informal sector wherein such benefits would not be there. This situation would be worse in the case of women than men, since the work participation of women during old age will be much lower. Of course, some elderly would work beyond age 58 or 60 years mostly for livelihood. However, here again the wages may not be as equal to as that of adults. With all these difficulties, elderly persons seek money from different persons for day-to-day survival including health and medicare. In such circumstances, they demand/request money, firstly, from their family members. But for those who do not have family members and close relatives, the situation will be alarming. Keeping this mind, in this paper, an attempt is made to examine the patterns of receiving economic support by the elderly for medicare and the factors affecting the same with field-based data from Coimbatore city, Tamil Nadu.

Review of Literature

Generally, elderly widows depend on their children for economic support because their access to monetary resources from pension and right to inherit property is limited. Some studies have focused on from

whom elderly have received for medicare and its associated factors. A brief review of some such empirical findings is presented in this section. A study among 346 elderly persons of Rajshahi city, Bangladesh, Sarker (1997) noticed that about 90 per cent sons and 25 per cent daughters provided financial assistance to their parents especially for treatment. Siva Raju's (2002) medico-social study in three income localities – 100 elderly from each locality – highlighted that over three-fourths among the total elderly (79%) received economic support for medical expenses from the members of the immediate family. Such proportion was higher among Middle Income Group (MIG) and well-to-do and also among females as compared to those who were poor in their economic status and males. Venkateswarlu *et al.*, (2003) in their study of selected villages, Guntur district, Andhra Pradesh covering 150 elderly men and 150 elderly women noticed that 17 per cent of the elderly didn't get financial assistance from medical expenses. On the other hand, majority of the elderly (38%) got financial assistance from their sons followed by wife (16%), husband (16%), daughter (6%) and neighbours/friends (6%). Further it was found that the increase in elderly age the percentage of financial assistance for medical expenses from son and daughter was increased, whereas such per cent had declined in case of spouse (husband/wife). The study by Sushma *et al.*, (2004) among 50 randomly selected aged widows in three villages of Hisar district, Haryana state, exhibited that two-fifths of aged widows (40%) relied on 'others' for financial support at the time of illness. Few spent their own savings (11%), some ignored medical treatment (9%) and even 1.3 per cent took support from daughter.

Audinarayana (2005) in his study of rural and urban elderly in three districts of Tamil Nadu state noticed that the person who extended financial assistance during illness was higher in the case of son (45%), self (39%), daughter (14%), spouse (11%) and others (9%). Kumar *et al.*, (2005) in their study in rural north India observed that the percentage of elderly who received economic support for meeting the expenditure for treatment when they fell sick was higher from son/daughter (53% and 13%, respectively), followed by self (37% and 6%, respectively) and others (10% and 4%, respectively). While analysing Zimbabwe Cross-sectional Ageing Survey 1994–95, Kimuna

(2005) observed that older people who suffered from chronic illness were significantly ($p < 0.05$) more likely to receive material support from children. An analysis of Ageing Survey, 1993 in South India (Tamil Nadu, Kerala and Karnataka) among 1,755 elderly persons by Sudha *et al.*, (2007) revealed that children were the chief sources of economic support to elderly (25% and 51%, respectively among men as against 51% and 30%, respectively among women) followed by spouse and children. Logistic regression analysis on the likelihood of receiving financial support from children among total sample respondents showed that elderly who have more number of sons and daughters, currently widows and with high level of assets significantly ($p < 0.001$ and $p < 0.01$ in the last attributes) more likely to receive financial support from children. On the other hand, elderly who were engaged in professional work, agricultural work, number of brothers, and extending labour significantly ($p < 0.001$, $p < 0.01$ in the case of last but two attributes and $p < 0.05$ in the case of last one) less likely to receive financial support from children.

A study by Sheela and Jayamala (2008) in Coimbatore city, Tamil Nadu among elderly women highlighted that son was the main person (43%) who looked after the medical expenses of elderly persons followed by daughter (28%), whereas one-fifth of them reported that they borne medical expenses from their own savings and a few stated that spouse helped in this regard. Nasreen's (2009) study among 300 elderly persons in New Delhi revealed that majority received financial help for medical care from their children (sons - 46% and daughters - 5%) and another 5 per cent rely on their spouses. Yet another urban study of Puducherry among female elderly (Sujitkumar, 2009) also revealed that about fifty per cent of them hospital expenditures were met by children and for 44 per cent such expenditure was met by themselves. As expected among males such expenditures were mostly by themselves, whereas children's role dominates in the case of female elderly' hospital expenditure. A recent study by Audinarayana (2012) in Coimbatore city Tamil Nadu revealed that less than half of the elderly persons (47%) were not receiving any financial assistance for medicare from anybody (self). About three-tenths were receiving from son, one-tenth from daughter and rest of them from spouse and others. Multinomial logistic regression results showed that the odds of

receiving financial assistance for medicare from children (as against nobody) were significantly ($p < 0.001$) higher among those who had living children, son as well as belonged to the households of moderate and high Standard of Living Index than those who did not have a single living child, son and low Standard of Living Index. It was also observed that elderly who were co-residing with children/others and an old-old in age obtained such financial support to a greater extent than their counterparts.

Objectives

The major objectives of this study were as follows:

1. To understand the pattern of receiving economic support from different persons (Nobody/Others and Children) for medicare to chronic morbidities among the elderly widows (60+ years) in an urban setting (Coimbatore city) of Tamil Nadu.
2. To examine the differentials in magnitude of elderly widows receiving economic support for medicare in case of one or other chronic illness form different persons (Nobody/Others and Children) across their background characteristics.

Data and Methodology

Data Source

Data for the present study were collected from 352 elderly widows (60+ years in age) from Coimbatore city, Tamil Nadu, during 2010. The sample widows were selected from 4 wards (out of 72 wards) in Coimbatore Municipal Corporation (CMC). The selection of wards was based on their literacy rates (one of the best indicators of social development) – 2 wards each with from higher and lower literacy rates among elderly widows population according to 2001 census on simple random basis. Of the 352 elderly sample widows, the final analysis on receiving economic support for medicare to chronic morbidities of elderly widows restricted to 310 elderly widows excluding those who did not suffer from any chronic health problems at the time of survey.

Dependent Variable: In this present study, the elderly widows were asked to state from whom they used to receive financial assistance for seeking medical consultation for various chronic morbidities

(Table 1). Then pooling all these aspects, the principal person(s) extended economic support have been arrived (person(s) who provided economic assistance for medicare to at least 1 or more chronic morbidities) and treated the same as dependent variable. Based on this information (dependent variable), all the elderly widows were categorised into two groups, viz., elderly widows who received economic support from 'nobody/others', which includes self, siblings, relatives, friends, etc., and 'children' (either son or daughter or both).

Table 1
Elderly Widows who Received Economic Support from Different Persons for Medicare to Chronic Morbidities

(N=310)

| <i>Chronic Morbidities</i> | <i>Person(s) from whom Elderly Widows Received Economic Support</i> | | <i>Total</i> |
|--|---|-----------------|--------------|
| | <i>Nobody/Others</i> | <i>Children</i> | |
| Poor vision/Cataract | 48.2 | 51.8 | 191 |
| Lung problem/Asthma | 40.0 | 60.0 | 25 |
| Diabetes | 34.8 | 65.2 | 66 |
| Blood pressure | 39.5 | 60.5 | 152 |
| Ulcer or Gastric problem | 46.4 | 53.6 | 28 |
| Rheumatism/Arthritis | 40.6 | 59.4 | 187 |
| Heart disease | 48.4 | 51.6 | 31 |
| Nervous disorders | 75.0 | 25.0 | 8 |
| Skin diseases | 40.0 | 60.0 | 5 |
| Kidney troubles | 100.0 | — | 2 |
| Tuberculosis | 33.3 | 66.7 | 12 |
| Back pain/Slipped Disc | 46.7 | 53.3 | 75 |
| Dental Problems | 50.0 | 50.0 | 10 |
| Frailty/General Weakness | 50.0 | 62.7 | 83 |
| Economic Support to Medicare for Chronic Illnesses | 41.6 | 58.4 | 310 |

Note: Percentages of those elderly widows who received economic assistance for medicare to chronic morbidities only presented.

Explanatory Variables: Selected socio-economic and household characteristics of the elderly widows were taken into consideration here as explanatory variables (independent variables). The details

related to these independent variables are given in Table 2–4. Most of these variables are self-explanatory, except the Standard of Living Index of Households for which the details are given in the following lines.

Table 2
Percentage Distribution of the Elderly Widows Who Received Economic Support for Medicare to Chronic Morbidities by their Current Age and Caste Background

| Current Age and Caste Background of the Elderly | Persons from whom Received Economic Support for Medicare | | | | Total | |
|---|--|-----|----------|-----|-------|-------|
| | Nobody/Others | | Children | | N | % |
| | % | N | % | N | | |
| 1. Age (in Years) | | | | | | |
| 60 – 64 | 46.8 | 36 | 53.2 | 41 | 77 | 24.8 |
| 65 – 69 | 40.3 | 29 | 59.7 | 43 | 72 | 23.2 |
| 70 – 74 | 41.0 | 25 | 59.0 | 36 | 61 | 19.7 |
| 75 + | 39.0 | 39 | 61.0 | 61 | 100 | 32.3 |
| ×2 – Value; Sig. Level | | | NS | | | |
| 2. Caste | | | | | | |
| Scheduled Castes/Tribes | 51.2 | 43 | 48.8 | 41 | 84 | 27.1 |
| Most Backward/Backward Castes | 38.9 | 70 | 61.1 | 110 | 180 | 58.1 |
| Forward Castes | 34.8 | | 65.2 | 30 | 46 | 14.8 |
| ×2 – Value; Sig. Level | 4.604; p < 0.10 | | | | | |
| Total | 41.6 | 129 | 58.4 | 181 | 310 | 100.0 |

Note: Percentage are calculated for each of the categories of Current Age and Caste. Background by row-wise. In the last column, the percentages calculated for the Total Sample of Elderly Widows by Column-wise.

Standard of Living Index (SLI): This is mostly used proxy measure of economic conditions of households. For this measure, selected housing conditions and amenities as well as consumer goods available in the households were considered and assigned the scores in the following lines: Type of House (Hut=0, Kutcha=2, Pucca=3); Source of Drinking Water (Well=0, Street Tap=2, and Own Tap=3); Availability of Bathroom Facility (No=0, Others=1, Outside House=2

and Within House=3); Availability of Toilet Facility (No=0, Others=1, Outside House=3, and within House=3); Type of Cooking Fuel (Firewood=0, Kerosene=2 and LPG=3); Electrification of House (No=1, Yes=2); Availability of Radio, Bicycle, Fan, and Sofa/Dining Table (No=0, Yes=2); Availability of LPG connection, TV, Scooter/Motor Cycle, Refrigerator, and Telephone (No=0, Yes = 3) and Availability of Motor Car (No=0, Yes=4). Based on the cumulative scores of each household, all the households are categorized into two SLI groups, viz., Low = (Scores = 19) and High = (Scores = 20-42).

Analysis of Data

With regard to analysis of data, firstly, the patterns of receiving extended economical support as well as the prevalence of morbid conditions among the total sample elderly widows, in addition to elderly widow's background characteristics were analysed with the help of frequency tables. At the next stage, taking the two groups of persons who extended economical support to elderly, the differentials in these have been analysed across their background characteristics including living arrangements as well as number of earning members and surviving sons in the family making use of cross-tabulations with Chi-square test of significance.

Result and Discussion

A Brief Description of the Elderly Widows Socio-economic Characteristics

Data related to the socio-economic characteristics of the elderly widows (panel 1-2 of Table 2), it is evident that slightly more than three-tenths of the elderly were 'old-old' (75+ years) and about one-fourth were fairly 'young-old' (60-64 years). It highlights that with an increase in the age of the elderly widows, their proportion gets also increased. This is expected because of the widows life expectation is higher with an advancing age. With regards to caste, elderly widows belonged to most backward and backward castes (moderate in their economic strata) were large in number than their counterparts. From Table 3 (panel 1-4) shows that, a simple majority of the elderly women were illiterates and not-working or homemakers at the time of survey and thereby, not getting any independent income, but mostly widows

help to household work and especially look-after their grandchildren. On the other hand, overwhelming percentage of elderly women were not getting any monthly income and belonged to households of higher Standard of Living Index.

Table 3
Percentage Distribution of the Elderly Widows Who Received Economic Support for Medicare to Chronic Morbidities by their Socio-economic Characteristics

| Socio-economic Characteristics of the Elderly | Persons from whom Received Economic Support for Medicare | | | | Total | |
|--|---|-----|---------------------|-----|-------|-------|
| | Nobody/Others | | Children | | N | % |
| | % | N | % | N | | |
| 1. Educational Status | | | | | | |
| Illiterate | 44.4 | 88 | 55.6 | 110 | 198 | 63.9 |
| Up to Middle School | 29.7 | 22 | 70.3 | 52 | 74 | 23.9 |
| Higher School & above | 50.0 | 18 | 50.0 | 19 | 38 | 12.2 |
| χ^2 - Value; Sig. Level | | | 6.054; $p < 0.05$ | | | |
| 2. Occupational Status | | | | | | |
| Non Workers/Homemakers | 26.6 | 50 | 73.4 | 138 | 188 | 60.7 |
| Retired/Pensioners | 52.0 | 26 | 48.0 | 24 | 50 | 16.1 |
| Non-Agricultural Labourers/ Skilled Workers/Business/ Employees | 73.6 | 53 | 26.4 | 19 | 72 | 23.2 |
| χ^2 - Value; Sig. Level | | | 50.012; $p < 0.001$ | | | |
| 3. Monthly Income | | | | | | |
| No Income | 25.3 | 46 | 74.7 | 136 | 182 | 58.7 |
| Rs = 2,000 | 68.4 | 52 | 31.6 | 24 | 76 | 24.5 |
| • 2001 & above | 59.6 | 31 | 40.4 | 21 | 52 | 16.8 |
| χ^2 - Value; Sig. Level | | | 49.412; $p < 0.001$ | | | |
| 4. SLI of Households | | | | | | |
| Low | 52.2 | 47 | 47.8 | 43 | 90 | 29.0 |
| High | 37.3 | 82 | 62.7 | 138 | 220 | 71.0 |
| χ^2 - Value; Sig. Level | | | 5.875; $p < 0.01$ | | | |
| Total | 41.6 | 129 | 58.4 | 181 | 310 | 100.0 |

Note: Percentage are calculated for each of the categories of Socio-economic Characteristics, by row-wise. In the last column, the percentages calculated for the Total Sample of Elderly Widows Column-wise.

Information relating to living arrangements, earning members and number of surviving son(s) of the elderly widows (panel 1-3 of Table 4) highlights that, with few expectations, an overwhelming per cent of the elderly persons is living with their children/others and about one-sixth of them live alone. Little over half of the elderly widows live in the households wherein only one earning member is available in the families and slightly less than two-fifths have two or more earning members. A few households, in which elderly women residing, there is no other earning member. On the other hand, slightly more than two-fifths of elderly women had two or more surviving sons closely followed by one son only and remaining had no surviving son.

Table 4

Percentage Distribution of the Elderly Widows Who Received Economic Support for Medicare across their Living Arrangements, Number of Earning Members and Surviving Son(s)

| <i>Living Arrangements, No. of Earning Members and Surviving Son(s) to Elderly</i> | <i>Persons from whom Received Economic Support for Medicare</i> | | | | <i>Total</i> | |
|--|---|----------|---------------------|----------|--------------|----------|
| | <i>Nobody/Others</i> | | <i>Children</i> | | <i>N</i> | <i>%</i> |
| | <i>%</i> | <i>N</i> | <i>%</i> | <i>N</i> | | |
| 1. Living Arrangements | | | | | | |
| Children/Others | 32.6 | 85 | 67.4 | 176 | 261 | 84.2 |
| Alone | 89.8 | 44 | 10.2 | 5 | 49 | 15.8 |
| χ^2 - Value; Sig. Level | | | 55.611; $p < 0.001$ | | | |
| 2. No. of Earning Members | | | | | | |
| 0 | 82.8 | 24 | 17.2 | 5 | 29 | 9.4 |
| 1 | 36.3 | 61 | 63.7 | 107 | 168 | 54.1 |
| 2 + | 38.9 | 44 | 61.1 | 69 | 113 | 36.5 |
| χ^2 - Value; Sig. Level | | | 22.485; $p < 0.001$ | | | |
| 3. No. of Surviving Son (s) | | | | | | |
| 0 | 62.2 | 46 | 37.8 | 28 | 74 | 23.9 |
| | 44.3 | 47 | 55.7 | 59 | 106 | 34.2 |
| 2 + | 27.7 | 36 | 72.3 | 94 | 130 | 41.9 |
| χ^2 - Value; Sig. Level | | | 23.554; $p < 0.001$ | | | |
| Total | 41.6 | 129 | 58.4 | 181 | 310 | 100.0 |

Note: Percentage are calculated for each of the categories of independent variable by row-wise. In the last column, the percentages calculated for the Total Sample of Elderly Women by Column-wise.

Patterns of Receiving Economic Support for Medicare by the Elderly Widows

Information provided in Table 1 highlights that slightly less than three-fifths of the elderly women were receiving economic support from their children for medicare to one or the other chronic morbidities. However, for chronic morbidities like tuberculosis, diabetes, blood pressure, frailty/general weakness, lung problem/asthma, rheumatism/arthritis and ulcer/gastric problem 'children' used to extend such help to a large extent. On the other hand, about two-fifths of the elderly were receiving economic support for medicare to chronic illness from 'nobody/others'.

Differentials in Receiving Economic Support by the Elderly Widows from Different Persons for Medicare by Current Age and Caste Background

Information about the elderly widows received economic support from different persons for medicare to chronic morbidities by their current age and caste background is presented in Table 2. From panel 1, it is evident that, by and large, the percentage of elderly women receiving economic support from children for medicare to chronic morbidities was noted to be reasonably higher in all the age groups and showed an increasing trend with an increase in their current age (from 53% for those in 60–64 age group to 61% for those in 75 years & above), whereas the reverse pattern is quite evident among those who received economic support from 'nobody/others'. However, these percentage differentials didn't turn out as statistically significant. Data provided in panel 2 highlights that the percentage of economic assistance received by the elderly widows from children is much higher among those who belonged to forward castes closely followed by most backward/backward castes (who are said to be relatively better in their socio-economic status) as compared to scheduled castes/tribes (lower in their socio-economic status). The Chi-square test results between the caste background of the elderly and receiving economic assistance from children for medicare turned out to be significant at lesser extent only ($p < 0.10$).

Differentials in Receiving Economic Support by the Elderly Widows from Different Persons for Medicare by Socio-economic Characteristics

Data pertaining to receiving economic support for medicare by the elderly from different persons across their socio-economic characteristics is provided in Table 3. From panel 1, one can see that the percentage of elderly women used to get economic support for medicare from children is fairly higher among those who studied up to middle school level (70%) as compared to those who are illiterates (56%). However, it was conspicuous to note that such support is quite low in the case of those elderly who are educated beyond high school and above level of education (50%). The association between the percentage differential in receiving economic support from children and their level of educational attainment has emerged as moderately significant (Chi-square=6.054; $p < 0.05$). Information given in panel 2 highlights that the percentage of elderly widows who reported to be receiving economic support for medicare from their children is substantially large among those who are not working/homemakers (73%) as against to those who retired from some employment (pensioners) and other income recipients (48%). The lowest percentage of such assistance is noticed among those elderly who are currently engaged in different income generating activities (non agricultural labourers/skilled workers/business/employees). On the contrary, this pattern is reversed in the case of those who use to get such help from nobody/others. It is also striking to note that the Chi-square results between the occupational status of the elderly widows receiving economic support from children as against nobody/others have turned out to be highly significant ($p < 0.001$).

Data given in panel 3 of Table 3 demonstrate that the percentage of elderly widows receiving financial assistance to medicare from children is much higher among those elderly who are not earning any income (75%) as against those who are earning monthly income of Rs 2,000 and less (32%). However, it is interesting to note that such support is slightly higher in the case of elderly who are earning monthly income of Rs 2,001 and above (40%). An opposite trend is more visible in the case of those who did not receive any such support/received from others across monthly income under

consideration. The Chi-square results between monthly income of elderly widows and receiving economic support from children as against nobody/others have turned out to be highly significant ($p < 0.001$). It is clear to observe from panel 4 of Table 3 that the percentage of elderly widows receiving economic support for medicare from children is fairly large when they belonged to households of high SLI as compared to those who reside in the households of low SLI. An exact opposite trend is well noticed in the case of those elderly persons who did not receive such support from anybody or received from others across the two categories of SLI of households. However, the chi-square results between elderly are getting economic support for medicare and SLI of households have emerged as highly significant ($p < 0.01$).

Differentials in Receiving Economical Support by the Elderly Widows from different persons for Medicare by their Living Arrangements, Earning Members and Surviving Son

Living arrangements of the elderly is another important factor to receive economic support from children. The differentials in receiving economic support for medicare by selected living arrangements are presented in Table 4. From panel 1, it is obvious to note that the percentage of elderly women who were receiving economical support for medicare from children was comparatively higher among those who were living with children/others (67%) as against to those who live alone (10%). An exact reverse pattern to this observed in the case of those elderly who were getting support from 'nobody/others'. These percentage differentials turned out to be highly significant ($p < 0.001$). Information given in panel 2 of Table 4 highlights that the percentage of elderly women who were receiving economic support for medicare from their children was much higher among those who were residing in families in which at least one earning member (other than the elderly) is there closely followed by two or more earning members as compared to those families that do not have any earning member. An exact reverse pattern was observed in the case of those who received such support from nobody/others. It is also striking to note that the Chi-square results between the number of earning members in the families in which elderly widows reside and receiving economic support from children are also turned out to be highly

significant ($p < 0.001$). Data provided in panel 3 reveals that the magnitude of elderly widows used to get economic support for medicare from children is remarkably higher when elderly have two or more surviving sons (72%) followed by those who have one son (58%) and the lowest percentage of receiving such support is recorded among those elderly widows who have no single child (39%). On the contrary, the reverse pattern is noticed in the case of those elderly received such support from nobody/others. The Chi-square results between number of surviving son(s) to the elderly and receiving economic support for medicare from children have emerged as highly significant ($p < 0.001$).

Conclusion and Implications

During the recent past, most of the less developed countries are facing ageing of population raises financial challenges to the family and the society. An examination of the field-based data from an industrial city, Tamil Nadu, on the whole, majority of the elderly widows in the study area were receiving economic assistance for medicare (when they were suffering with one or the other chronic morbidities) from their children (58%), especially by son. This finding is almost concurrent with findings observed in many traditional societies around the world. Further, it is observed that, by and large, elderly widows who are suffering with one or more chronic morbidities tend to receive monetary support for medicare to a higher extent from children when they are old-old, belong to forward and backward castes, studied up to middle school, not working/homemakers and not earning any income, belonged to households of higher Standard of Living Index, have one or more earning members and more numbers of surviving sons than their respective counterparts. Conversely, receiving such assistance from children was comparatively much lower among those elderly widows who were 'living alone', engaged in any income generating activities and thereby, earning some personal income as against to those who were co-residing with children or others, not working and not earning any personal income.

In the light of the aforesaid findings, some of the following policy implications are put forth. First of all, improving socio-economic status of the elderly persons in general and that of widows in particular

would be better for their well-being in the future. For that, it would be better to provide some avenues for working, earning reasonably higher income, providing suitable social security policies and increase in the sum of Old Age Pension. Such measures would make them self-sufficient and thereby, reduce their drudgery, increase in the likelihood of meeting their personal expenditure including for medicare rather than depending upon the children or other caregivers. Finally, there is a need to encourage present day adults to save and/or invest money in a proper fashion during their working period, which would be much helpful during their old age.

Acknowledgements

The author is highly indebted to Dr. N. Audinarayana, Professor and Head., Department of Sociology and Population Studies, Bharathiar University, Coimbatore for his constant encouragement by which this paper has come into limelight. Thanks are also due to the authorities of the Bharathiar University, Coimbatore and Indian Council of Social Science and Research, New Delhi for endowing with University Research Fellowship and Short-term Doctoral Fellowship, respectively for pursuing Ph. D. Programme through which it has become possible to prepare this paper.

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Indian Journal of Gerontology
2014, Vol. 28, No. 3, pp. 401–413

Assessment of Morbidity Among Elderly Pensioners In Jaipur City

Ruchi Sharma and Mukta Agrawal

P.G Department of home science, University of Rajasthan, Jaipur

ABSTRACT

Ageing is defined as progressive, generalized impairment of functions (both males and females) leading to loss of adaptive responses to stress, and growing risk of age related diseases, resulting in progressive increase in age specific morbidity and mortality. The present paper discusses the chronic and acute morbidity profile of elderly pensioners of Jaipur city (Northern India). The morbidity profile of 400 pensioners aged 65 years and above was assessed by a structured questionnaire and by measuring height, weight, waist to hip ratio, BMI, obesity and blood pressure and the other diseases reported by the subjects.

Keywords: Ageing, Morbidity and Mortality

India is going through a revolution in its demographic, economic, socio cultural and psychological status. The population aged 60 and over is increasing rapidly in the country and thereby putting thrust over health care facilities and services. Today there are approximately 590 million people over the age of 60, but in just 25 years that number will be doubled to 1.2 billion (Kashyap and Sidhu, 2011). As it is well known that children and elders are most vulnerable of *morbidity* and *mortality*, therefore, the demand of good sources of nutritional and health benefits increases. Morbidity has been defined as the rate of incidence of disease or the state of being morbid. From the morbidity

point of view, at least 50 per cent of elderly in India have chronic diseases (Srinivasan *et al.*, 2010 and Bhatt *et al.*, 2011). This poses a greater responsibility on the health care services especially in developing countries like India, where there is greater strain on available health infrastructure.

Old age is usually a period of declining physical health. The physical parameters at this sensitive stage of life are outcome of many variables such as hereditary factors, childbirth in females, the manner of living, educational background, health awareness, metabolic characteristics, environmental factors, vicissitude of living, nutritional level, infectious intoxication, occupational influences, family composition, etc., are some of the common causes that influence the rate of physical decline. Usually getting old is inferred as losing beauty, strength and vigor. Physical changes although occur throughout adulthood, it is only in later life that the cumulative effects of such changes tend to catch up with the individual and begin to interfere with daily life patterns and habits.

Much work has been done on elderly people but at the same time data regarding the nutritional status, morbidity and wellbeing of retired elderly pensioners in India are lacking. Therefore, with this objective in mind the present study was planned to assess the morbidity profile of retired elderly pensioners residing in Jaipur city, Rajasthan.

Methodology

Sample

The present study was carried out on 400 elderly (both male or female) pensioners (age ranging from 65–70 years) retired from State Government's various Departments, residing in Jaipur city. To approach these elderly pensions the researchers contacted the Pensioner's Society's Office in Dev Nagar, Tonk road, Jaipur. All pensioners attending the society's meetings and programmes were included in the study. Also a list of registered elderly pensioners was procured from the state pension department. Amongst them exclusively those elderly males and females were selected who gave their

verbal consent to participate in the study and were contacted on door to door basis.

Procedure

A structured questionnaire for the collection of data was prepared by the researcher. The questionnaire comprised of personal information, educational level, and economic status, anthropometric details (height, weight, waist to hip circumference and body mass index (BMI) and addiction habits prevailing among the subjects. Height was measured by using a wall mounted height meter and weight was recorded by using a portable weighing balance. Two consecutive readings were recorded after calibrating the instruments. Waist and hip measurements were recorded by using a non stretchable tape. BMI was calculated by the formula, weight/height (m²). The subjects were considered normal with BMI 19–22.99 and obese with BMI of >30. BMI cutoffs suggested for Asians (WHO, 2004) were used for assessing overweight and obesity. WHR cutoff for Asians i.e. = 0.9 for males and = 0.8 for females were used. The morbidity profile (acute and chronic) was assessed by a structured questionnaire in which a list of chronic and acute diseases was given and respondents were interviewed for the presence or absence of the diseases. Blood pressure was measured by using a digital BP instrument by Panasonic. Details regarding the addiction habits were asked by interviewing the subjects.

Results

Out of 400 pensioners (363 males and 37 females) studied, 259 males were in the age group of 65–70 years and 104 males were in the age group of 71–75 years. The mean age of subjects was 67.44 ± 1.65 and 72.99 ± 1.52 in both the age groups. The major proportion of subjects studied i.e. 395 (98.75%) were Hindus, followed by Muslims 2(1%), Sikhs 1 (0.25%) and others 1(0.25%) respectively. More than two third of the elderly respondents were married and living with their spouse while 75 per cent were living in nuclear family set up which also highlights their unmet needs for emotional, physical and social security at this stage of life. Majority of the elderly (76.76%) were living an addiction free life while 10.75 per cent subjects were addicted to chewing tobacco and betel nuts. Only 5.5 per cent and 5.75 per cent subjects were addicted to smoking and alcohol consumption.

Table 1
Mean Anthropometric Measurements of the Respondents

| Variables | Males | | Females | |
|---------------------------|----------------------|----------------------|---------------------|--------------------|
| | 65-70 years n=259 | 71-75 years n=104 | 65-70 years n=28 | 71-75 years n=9 |
| Height (cms.) | 171.45±9.08 | 172.98±10.02 | 160.86±7.89 | 159.55±8.59 |
| Weight (kgs.) | 66.22±7.85 | 66.86±6.24 | 64.25±6.21 | 57.55±11.68 |
| BMI | 22.67,±9.08 | 22.48,±2.80 | 25.06,±3.77 | 22.64,±4.51 |
| Waist circumference (cms) | 114.08,±24.17 | 112.74,±20.06 | 116.71,±18.29 | 97.67,±18.41 |
| Hip circumference (cms) | 116.77,±22.76 | 114.63,±18.79 | 120.32,±18.08 | 101.78,±16.23 |
| Waist to hip ratio | 0.97,±0.05 | 0.98,±0.04 | 0.97,±0.038 | 0.96,±0.09 |

The mean height of the subjects was 171.45±9.08 cms. and 172.98±10.02 cms. in the younger and older age groups, whereas in females mean height was 160.86±7.89 cms. and 159.55±8.59 cms. respectively. The mean weight of the respondents was 66.22±7.85 kg and 66.86±6.24 kg in males and 64.25±6.21 kg and 57.55±11.68 kg among females of younger and older age groups respectively. The BMI among male elderly respondents in 65-70 years age group (Table 1) was 22.67 ± 3.37 whereas among higher age group males (71-75 years) it was 22.48 ± 2.80. Females of younger age group (65-75 years) had BMI of 25.06 ± 3.77 while it was 22.64 ± 4.51 in the older age group. The BMI of women in 65-70 year age group was above the cutoff for normal BMI (= 23) values and also higher than males (22.67). Subjects of both age groups had waist to hip ratio of 0.97. Females had higher waist to hip ratio than the desirable, (<0.8) indicating truncal obesity and risk factor of coronary heart diseases and diabetes. In the present study 36 per cent elderly respondents were either overweight or obese (BMI >23), 23 per cent were obese and 3 per cent were morbidly obese. It was observed that when asked about the presence of obesity among elderly the response was surprisingly indicated low prevalence which means the elderly do not consider themselves as overweight or obese.

Figure 1
Prevalence of Trunkal Obesity in the Elderly Respondents (65–70 years) (contd.)

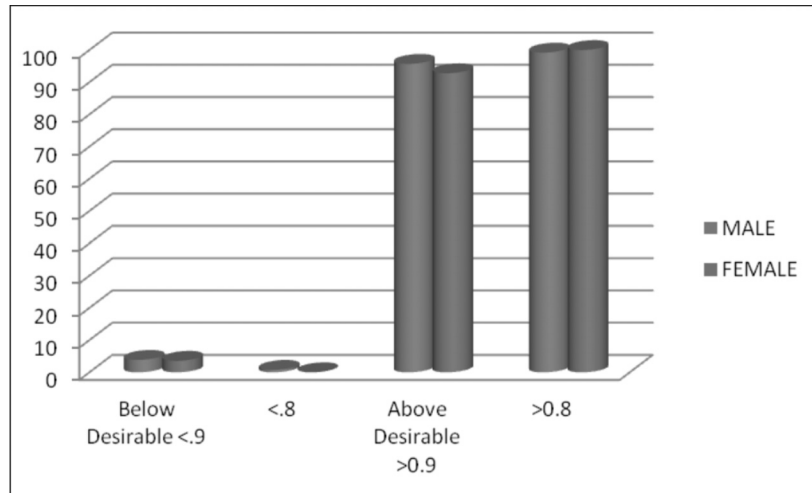


Figure 2
Prevalence of Trunkal Obesity among the Elderly Respondents (71–75 years)

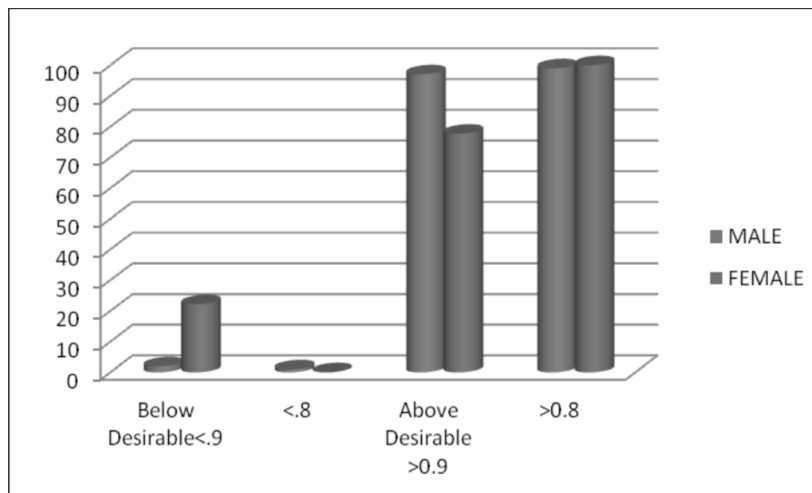


Table 2
Distribution of Respondents in Various Categories of BMI Classification (WHO, 2004)

| BMI categories | Males | | | Females | | | Overall N=400 |
|----------------------------|---------------------------|---------------------------|----------------|--------------------------|-------------------------|---------------|------------------|
| | 65-70 years N=(259) | 71-75 years N=(104) | Total N=363 | 65-70 years N=(28) | 71-75 years N=(9) | Total N=37 | |
| < 16 Severe Thinness | 0 | 0 | 0 | 0 | 11.11 | 2.70 | 0.25 |
| 16-16.99 Moderate Thinness | 0.7 | 0 | 0.5 | 0 | 0 | 0 | 0.5 |
| 17-18.99 Mild Thinness | 6.94 | 1.15 | 5.7 | 3.5 | 11.11 | 5.40 | 5.75 |
| 19-22.99 Normal | 58.30 | 26.25 | 60.33 | 28.57 | 33.33 | 29.72 | 57.5 |
| 23-24.99 Normal | 10.03 | 4.6 | 10.46 | 7.14 | 0 | 5.40 | 10 |
| Pre obese 25-29.99 | 20.07 | 7.7 | 19.83 | 57.14 | 44.44 | 54.05 | 23 |
| >30 Obese | 3.86 | 0.9 | 3.03 | 3.5 | 0 | 2.70 | 3 |

Figure 3
Prevalence of obesity in elderly respondents

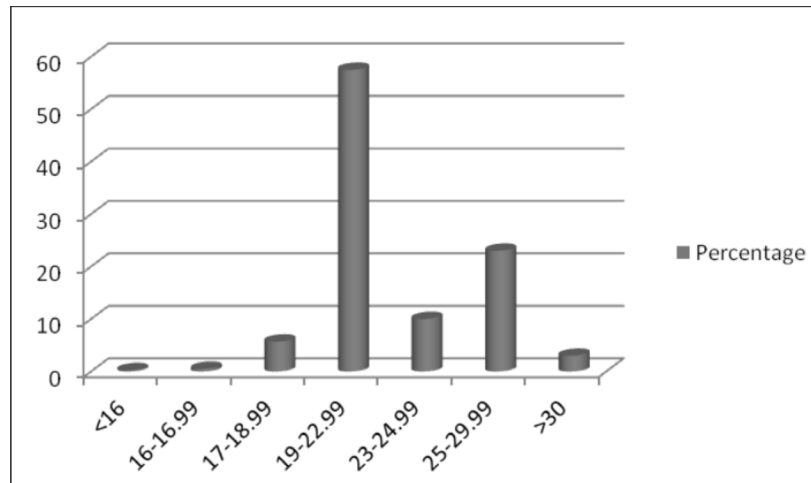


Table 3
Prevalence of Morbidities among Elderly

| Number of Health Problem | 65-70 years | | 71-75 years | | Overall n=400 |
|--------------------------|-------------|------------|-------------|-----------|------------------|
| | Males | Females | Males | Females | |
| | N=259% | N=28% | N=104% | N=9% | n=400% |
| None | 19.30 (50) | 14.29 (4) | 8.65 (9) | 11.11 (1) | 16 (64) |
| One | 30.50 (79) | 25.00 (7) | 13.46 (14) | 22.22 (2) | 25.5 (102) |
| Two | 32.81 (85) | 39.29 (11) | 42.31 (44) | 33.33 (3) | 35.75 (143) |
| Three | 13.13 (34) | 21.43 (6) | 23.08 (24) | 11 (1) | 16.25 (65) |
| Four | 4.25 (11) | 0.00 (0) | 4.81 (5) | 0.00 (0) | 4 (16) |
| >Four | 2.70 (7) | 0.00 (0) | 2.88 (3) | 0.00 (0) | 2.5 (10) |

Figures in parenthesis are the frequencies.

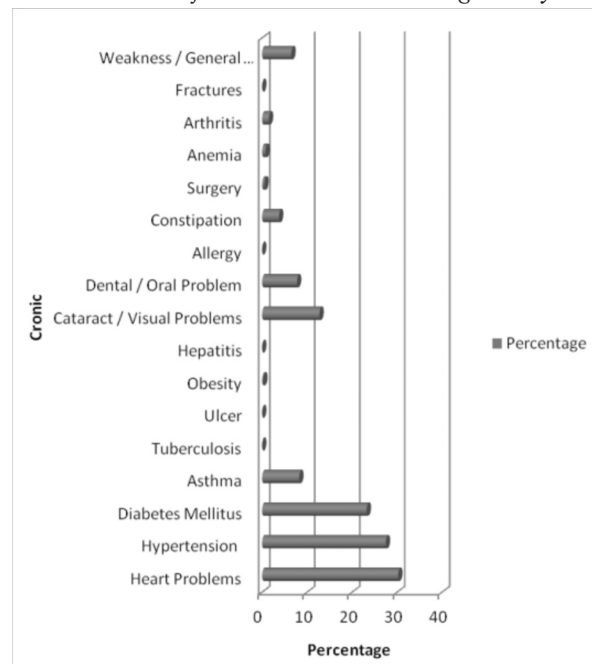
Morbidity Profile (chronic) of the Respondents

The present study revealed higher morbidity profile among the elderly. A majority of elderly (59%) had at least one or two health problems. Only small proportion (16%) of the respondents was living a disease free life. The present study also revealed a higher prevalence of chronic degenerative diseases, cardiovascular problems (30.25%), hypertension (37.5%), diabetes (23.25%) and asthma (8.25%) in elderly (Table 4). Hypertension is the most common cause of morbidity and mortality in elderly which can be controlled. It is an important problem in the treatment of ageing. In the present study 110 (27.5%) subjects reported themselves as hypertensive's and were taking medications whereas, 40 (10%) more elderly were found to be hypertensive on the day of investigation by the measurement of blood pressure and at the same time they were not aware about their condition. The percentage of chronic morbidity among the elderly was higher in the present study because many subjects were having more than one health problems.

Table 4
Morbidity Profile (chronic) as Reported by the Subjects

| Chronic Morbidities | 65-70yrs. 71-75yrs.(M) | | Total | 65-70yrs. 71-75yrs.(F) | | Total | n-400 |
|----------------------------|---------------------------|-------|-------|---------------------------|-------|-------|-------|
| | N=259 | N=104 | N=363 | N=28 | N=9 | N=37 | N=400 |
| Heart Problems | 28.57 | 35.58 | 30.57 | 28.57 | 22.22 | 27.02 | 30.25 |
| Hypertension | 25.48 | 35.58 | 28.37 | 14.29 | 33.33 | 18.91 | 27.5 |
| Diabetes Mellitus | 22.78 | 28.85 | 24.51 | 10.71 | 11.11 | 10.8 | 23.25 |
| Asthma | 8.11 | 9.62 | 23.75 | 00.00 | 22.22 | 5.40 | 8.25 |
| Cataract/Visual Problems | 11.20 | 16.35 | 12.67 | 7.14 | 33.33 | 13.51 | 12.75 |
| Dental/Oral Problem | 5.41 | 10.58 | 6.88 | 7.14 | 22.22 | 10.81 | 7.75 |
| Constipation | 3.86 | 4.81 | 4.13 | 00.00 | 00.00 | 00.00 | 3.75 |
| Anemia | 0.39 | 0.96 | 0.55 | 00.00 | 11.11 | 2.70 | 0.75 |
| Arthritis | 0.39 | 4.81 | 1.65 | 00.00 | 00.00 | 00.00 | 1.5 |
| Weakness/General Lassitude | 5.79 | 7.69 | 6.33 | 7.14 | 11.11 | 8.10 | 6.5 |

Figure 4
Prevalence of Chronic Diseases Among Elderly



Similar trends were reported by Agrawal *et al.*, (2005); Gaur *et al.*, (2008); Pawar *et al.*, (2010); John *et al.*, (2010) and Yuvraj *et al.*, (2010). Other common morbidities prevalent among the subjects included visual problems, dental problems, weakness and lassitude, constipation and obesity.

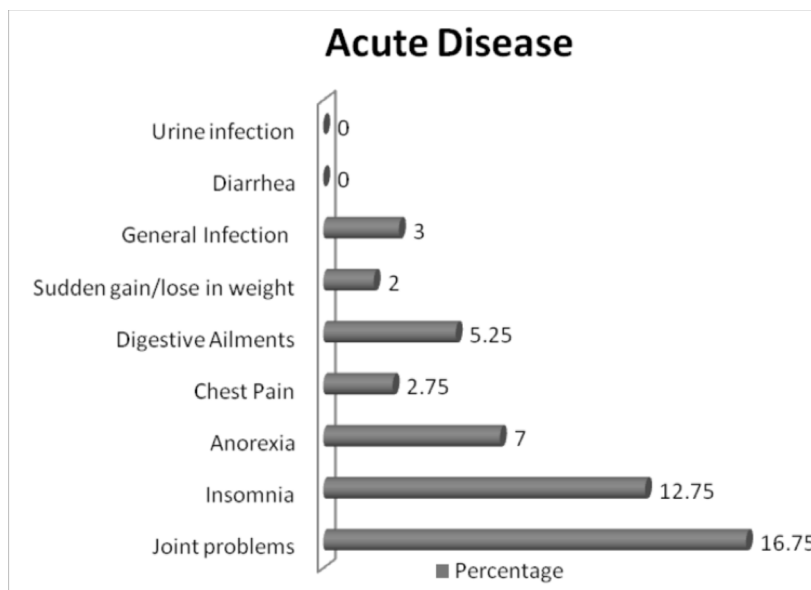
Morbidity Profile (acute) of Elderly

It is clearly evident from the Table 3 and Figure 5, that the morbidity profile of the elderly was very high i.e. 82.25 per cent respondents were suffering from one or more diseases. Two third of all elderly subjects (59.5%) were suffering from one to two health problems, while 16.25 per cent had three and 6.5 per cent subjects had four or more health problems. The acute morbidities revealed in the present study were, joint problems (16.75%), insomnia (12.75%), anorexia (7%), chest pain (2.75%), digestive disorders (5.25%), sudden lose or gain in weight (2%) and general infection (3%). The prevalence of acute morbidities were low as compared to the chronic health problems among the subjects.

Table 3
Morbidity Profile (acute) as Reported by the Subjects

| Morbidity | Males | | Total | Females | | Total | Overall |
|----------------------------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| | 65-70 (%) | 71-75 (%) | N=363 (%) | 65-70 (%) | 71-75 (%) | N=37 (%) | N=400 (%) |
| Joint problems | 13.51 | 21.15 | 15.70 | 28.57 | 22.22 | 27.02 | 16.75 |
| Insomnia | 11.20 | 15.89 | 12.67 | 14.29 | 11.11 | 13.51 | 12.75 |
| Anorexia | 8.49 | 00.00 | 6.06 | 21.43 | 00.00 | 16.22 | 7 |
| Chest Pain | 3.09 | 1.87 | 2.75 | 3.57 | 0.00 | 2.70 | 2.75 |
| Digestive Ailments | 5.41 | 5.77 | 5.50 | 3.57 | 0.00 | 2.70 | 5.25 |
| Sudden gain/lose in weight | 2.70 | 0.00 | 1.92 | 3.57 | 0.00 | 2.70 | 2 |
| General Infection | 1.93 | 2.80 | 2.20 | 14.29 | 00.00 | 10.81 | 3 |
| Disease free subjects | 53.67 | 53.27 | 53.17 | 10.71 | 66.67 | 24.32 | 50.50 |

Figure 5
Prevalence of Acute Morbidities among Respondents



Discussion

Population ageing is a world wide phenomenon and the demography of older persons heavily affects the health care system. The result of present investigation reveals that 80 per cent of all elderly persons suffer from one or more disease that requires 7–8 visits to a physician per year. They consume twice as much medicine as the general population and occupy 40 per cent of hospital beds. The Indian elderly are more likely to suffer from chronic rather than acute illnesses. There is rise in non communicable diseases, cardiovascular diseases, metabolic and degenerative morbidities as well as communicable diseases (Ingle and Nath, 2008).

One of the main factors which determine wellbeing at old age is the chronic non communicable diseases. They themselves are a series of overlapping and complicated disease entities and they share many common risk factors, like tobacco consumption is one of the major

risk factors of four important non communicable diseases like cancer, heart diseases, stroke, chronic obstructive pulmonary diseases (COPD), etc.

Chronic morbidities like cardiovascular diseases, diabetes, hypertension, etc., are the leading cause of death among the elderly (Jha *et al.*, 2006) and multiple chronic diseases afflict them; chronic bronchitis, anemia, hypertension, chest pain, renal problems, digestive problems, impaired vision, arthritis, rheumatism, depression, musculoskeletal problems psychological, loco motor and psychosocial problems (Roy, 1994; Shah and Prabhakar, 1997; Swami *et al.*, 2002; Gaurav and Kartikeyan, 2002; Rahul *et al.*, 2004; Dawale *et al.*, 2010 and Bhatt *et al.*, 2011).

The present study revealed high morbidity among elderly. Good health and nutritional status is strongly associated with life satisfaction. For the aged illness poses a deep threat to their well being and life satisfaction for the elderly is too often measured in terms of objective conditions like having enough money and being in good health. It can also be said that good health is positively related to overall well being. Aged suffering with deteriorated health and nutritional status is bound to have lower purpose of life and lower self acceptance to their subdued state of affairs. People in poor health are less satisfied with their lives than those in good health (Mannell and Zuzanek, 1999).

Conclusion

On the basis of obtained results it is concluded that morbidity profile of the subjects was very high. Only a small proportion (16%) of elderly were leading a disease free life and majority of them were suffering from more than one health problem including chronic and degenerative diseases like hypertension, diabetes, cardiovascular problems, visual ailments and oral and dental problems.

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Indian Journal of Gerontology

2014, Vol. 28, No. 3, pp. 414–430

An Exploratory Study of Social Workers' Perceptions of Violence Against Older People in Portugal

Maria Irene Carvalho

Department of Social Work, Lusophone University of Lisbon (Portugal)

ABSTRACT

This case study was aimed to analyse social workers perception of categories of risk of violence against the old people and to find out how social workers understand and intervene with older people in health care system and in the social system. Twelve professionals who undertook activities with older people and/or were in charge of social care and health care facilities of elderly. These subjects were given an open ended questionnaire which contained questions about various aspects of elder abuse and about abused people and the abusers. It was found that the respondents to the survey were able to identify some of the indicators of violence against the old people, especially if these were explicit: physical violence, negligence and abandonment. They considered family members to be the main perpetrators of abuse. The institutionalized, older people were doubly victimised. On the basis of present findings it may be argued that it is Portugal State and society's responsibility to create legislation for the prevention of violence against the older people.

Keywords: Elder abuse, Indicators of Violence, Social work

The Portuguese Constitution considers the humans rights, freedoms and personal guarantees as well as the dignity of the human being as basic principles. These are expressed in terms of power and

self-determination – autonomy, participation and choice. Within this scope, social work is understood as a social practice that operates in society with a relative autonomy and consequent social responsibility. Social work is associated with the promotion of social welfare, in general, and to protect and defend the rights of the most vulnerable groups in a specific way. As regards Granja (2007) the social work is a globalized knowledge, with “face”, as the center of its action, and the person in environment.

The social work has an implicit relationship with ageing and the elderly group. This relationship is part of their identity¹. In this sense, the intervention of social work with older people, promotes self-esteem, to safeguard their interests, improving the quality of life and community integration and combat discrimination and violence against the elderly.

The phenomenon of violence against older people gained prominence with the increase of elderly in the population structure resulting from gains in life after, 65 and more years. This matter has been studied by WHO (2002a and 2004) and European Commission (2008). These instances have produced recommendations for countries to implement in case of violence in the elderly. Although this is a global scourge there is no consensus on this issue, and there is a current that agrees that there are laws and regulations to protect the elderly, and one finds that no more is necessary. In this sense the violence on the elderly should be one of the current concerns of social workers.

In recent years, the World Health Organisation has put Portugal on the list of countries where the old people are mistreated. About 39 per cent, of old people of 65 years; in Portugal are victims of all sorts of abuse (WHO, 2011: 21). The studies by Carvalho (2012, 2011a, 2011b), and Paoletti and Carvalho (2012) show, that policies in Portugal are limited and there is still much to do in that respect, in terms of quality of service, and consequently, for the protection of the old people against violence.

In 1992, the European Council defined elder abuse as “a non-accidental action or omission that harms life, and the physical and psychological integrity of an elder harms the development of their personality, causing damage and compromising their financial security” (p. 3). The damage caused by omission is pertinent in these definitions, and places violence as an individual and paralegal issue. In

legal terms the act of involuntary or unintentional violence and abuse against older people can always represents omission².

WHO (2002a: 126) and European Commission (2008: 2) define violence against the elderly as, “a single or repeated act, or the absence of appropriate action, that occurs in the context of any relationship in which there is an expectation of trust which causes damage or tension to an elder”. In the Declaration of Toronto (WHO, 2002b), elder abuse includes the categories of physical, psychological, emotional, sexual, financial abuse and negligence, and it is considered that the abuse can be intentional or involuntary. As such, violence becomes a social and health issue.

Authors such as Minayo (2003: 785) propose a broader definition of violence against older people in social terms, “a concept regarding processes, interpersonal, group, class, gender social relations, or materialized in institutions when these use different ways, methods and means to annihilate the other, or to coerce them directly or indirectly by causing them physical, mental and moral damage.” (op. cit.).

However, violence against the old people cannot only be conceived interms of action. It is more than an act against an individual, and more than the social and health issue: it is a matter of power and human rights. Faleiros (2007) explains this complexity by considering it as “a complex and diverse relational process. It is relational because it should be understood within the structuring of society itself and interpersonal, institutional and family relations (...), it is complex because it involves power relations both in the broader social context and in private relations in a historical and dynamic perspective (...), and it is diversified in family, individual and collective demonstrations (...) amongst the various groups and segments, and it reaches the physical body and the psyche” (p. 27).

Faleiros (2007) assumes violence against the older people as occurring in an “unequal power relationship implying the denial of the other, of the difference, of tolerance and of opportunities. As a consequence it results in harm, damage, or suffering and infringes the social pact of sociability, the guarantee of rights and of civilization based on human rights” (Faleiros, 2007: 30). It furthermore causes material, moral and identity damage to those who suffer it and remain in a state of disadvantage within the structure of society.

This notion of violence is also argued for by Strümpel and Hackl (2008: 10) who propose to integrate violence within structural, cultural and personal dimensions. In structural terms, violence must be considered in relation to the influence of laws, the form of life under poverty and environmental circumstances. In cultural terms, violence must be considered in relation to religious values, ideologies, and negative pictures of old age. In personal terms, violence is considered in terms of motivation, self-esteem, biographical and life path aspects, and violence can occur in the context of intimacy.

Strümpel and Hackl (2008) have coordinated a European survey on representations of the notion of violence in several countries and came to the conclusion that definitions have distinct characteristics resulting precisely from the aspects previously mentioned. "It was therefore possible to distinguish in some countries that violence is associated to physical aspects and that abuse and ill-treatment are associated to negligence and emotional abuse" (Ibid.). Apart from these distinctions, similar characteristics were identified, with the indiscriminate use of the notions of violence, abuse, and ill-treatment highlighted as though they were one and the same thing.

Violence and abuse can be practised at three levels: self-inflicted (suicide, self-abuse), interpersonal (family and community), and collective (social, political and economic) (WHO, 2004). The most frequent is interpersonal violence and abuse, practised by relatives or by employees of institutions for older people or those who where they live and/or who they interact with or those who provide (or not) care. It can also be practised by strangers or known people from the community. Violence against older people is usually divided into the following categories: physical abuse; psychological and emotional abuse; spiritual; financial or material abuse; sexual abuse; negligence and self-negligence (WHO, 2002: 126–127; Strümpel and Hackl, 2008: 17).

Physical abuse involves inflicting pain or injury, physical coercion or domination induced by force or by undue use of medication, as well as physical brutality.

Psychological and emotional abuse involves inflicting mental anguish, insults, intimidation, false accusations, defamation, psychological suffering, mental cruelty and moral harassment and spiritual abuse involves the denial of the sense of identity of the person.

Financial or material abuse includes concerns illegal or improper exploitation, or the improper use of the elder's financial funds or material resources, such as extortion and control on pension, misappropriation of assets through persuasion, or coercion.

Sexual abuse implies non-consensual sexual contact of any kind with an older person including incest, indecent assault and other forms of sexual coercion.

Negligence involves the refusal or non-performance of an obligation to take care of an older person refusal of affection, lack of interest in the older person well-being, and abandoning them. Finally, self-negligence implies behaviour in which the older person puts his/her own safety and health at risk.

When referring the kinds of assistance provided in healthcare and social institutions we are talking about lack or inadequacy of assistance, inadequate food, deficient nursing services and lack of basic and specialized care. Staff stress results from precarious work conditions, insufficient training and psychological problems. A difficulties on the interaction between residents and staff refers to poor communication, resident aggressiveness and cultural differences. Treatment of the old people with disrespect for their dignity, as well as the phenomenon of bullying, can be identified as violence. Abuses in the internal environment of institutions, includes lack of privacy, the use of repression, inadequate sensorial stimuli and the propensity for accidents to occur inside the institution.

Organizational policies refer to abuse of power against the old people and non-participation of older people in the decisions concerning them, as well as authoritarian and bureaucratic attitudes and the use of repression, besides theft and fraud. Lack of counselling and the provision of information to residents and relatives, and the reduction or frequent rotation of staff are also typical of these categories of violence. The next section will examine other risk indicators that allow us to understand and identify the phenomenon of violence against older people.

In the case of professionals who carry out their activity in residential senior-citizen homes and healthcare services, it is necessary that they understand that risk increases when organizations are not open and bureaucratic and when those responsible rationalize activities and restrict the freedom of residents. It is also necessary to

understand that the society is more and more discriminatory and aggressive towards the old people, namely in respect of the participation, protection and valuing of this group in society. About this topic, see the recent studies about “ageism” and discrimination against older people in Europe. The Portuguese case is paradigmatic (Lima, cord, 2010) that the people do not assume, openly, the discrimination, but when you analyse their daily practices, we see that they are highly discriminatory.

The Portuguese Association of Support to the Victim (APAV) an entity which, together with the police, has the responsibility of following up cases of elderly abuse. According APAV, in 2009, 7,639 crimes were recorded by this association (APAV, 2010: 8). The crimes included domestic violence in 90.3 per cent of the cases, crimes against people and humanity in 7 per cent of the cases, crimes against patrimony in 2.3 per cent of the cases, crimes against life in society and the State in 0.2 per cent of the cases, road crimes in 0.1 per cent of the cases, and others such as drug trafficking in 0.2 per cent of the cases. With regard to domestic violence crimes, 86 per cent of the victims were females aged between 26 and 45 years old.

Of the 7.639 crimes recorded by APAV (2009) there were 642 cases involved individuals aged 65 or over, corresponding to 8.4 per cent of the total, with the majority being women (p. 8).

In the global statistics (APAV, 2009) regarding domestic violence in this report the author of crime is the spouse in 50.4 per cent of the cases but also the former spouse in 9.2 per cent of the cases, the father or mother in 9 per cent of the cases, and the son or daughter in 7.5 per cent of the cases. This data is according to the report presented by Ferreira and Alves (2010). APAV (2009) and Ferreira and Alves (2010) show that 59 per cent of these crimes, are committed at the joint residence and/or in 12 per cent at the cases in the victim’s residence.

Objective of the Study

There is a lack of information about the abuse of people in Portugal and thus there is a clear need to create a database and conduct research to identify categories of abuse.

Methodology

Sample

Twelve professionals who undertook activities with older persons and were in charge of social care and health care facilities of elderly. Two main reasons for selection of these respondents were: they were working with older people and they were relatively easy to access because of their proximity to the researcher.

Tool Used

For this exploratory methodology, based on case studies, an open-ended semi-structured interview schedule was used. It contained questions about the meanings attributed to elder abuse in Portugal: whether abuse is acknowledged in society and if so then in what way; whether abuse can be considered intentional or non-intentional; who are the abused older people (those at home and/or those in institutions); who are the perpetrators of abuse; existing legislation; the numbers of violent acts against the old people; risk factors and how these are typified; and who is institutionally responsible when one talks about elder abuse. These are the questions included in the survey. The survey was adapted from that of the European network *Prevent Elder Abuse* [ii], which authorised its translation and adaptation to the Portuguese reality.

The schedule was sent by email, via Google docs, to twelve professionals who undertook activities with older people and/or were in charge of social care on healthcare facilities. Of the twelve surveys sent³ we received four written answers by email – two from professionals who operate in the social work sector in central hospitals in the city of Lisbon, and two from professional coordinators of social facilities – such as residential and nursing homes.

Analysis of Data

The data analysis was based on qualitative and thematic perspective. A theoretical framework was to be constructed and ways to classify the discourse was to be determined. A basic topic-based content analysis was carried out on the informants' discourse. A single code was allocated to each interview – E1 and E2 corresponded to the health practitioners and E3 and E4, to the social care practitioners. In

addition, social work professionals did not give consent to discuss these issues because of professional confidentiality and victim's protection.

Ethical issues

Researching violence against older people poses ethical issues. Firstly, the protection of victims is essential. Secondly, protection of the social workers, was equally important especially from the aggressors. For these concerns anonymity of workers and confidentiality had to be maintained. To keep the anonymity of sources without changing their content, the researcher assumed a code for the analysis of the interviews (E1, E2, E3, E4).

Findings and Discussion

The researcher first present an analysis of the definitions of ill-treatment and abuse that professionals have identified in their working practice. The meanings that professionals attribute to violence against the old people, were clustered into individual and social categories (E1, E2, E3) and categories which focused on human rights and citizenship (E4) – Table 1. This signification is related to Bavel, M. V., *et al.*, (2010), they assume several significations of violence against the older people, ranging from aspects that can be allocated like, individual, family, intergenerational, and power and gender, human rights and social development.

Table 1

Professionals Definitions and Meanings of Abuse/Violence Against the Elderly

| | |
|--|---|
| (a) Violence as an action toward the older person that causes him/her damage (individual and social) | <p>“Destructive behaviour directed at the old people that occurs in the context of relationship that can produce damaging effects of a physical, psychological, social or economic kind, resulting in suffering for the old people person” (E1).</p> <p>“Actions, attitudes that do not respect the dignity and freedom of the old people: moral, physical, mental damage or material losses” (E2)</p> <p>“Abuse of the old people is a (single or repeated) action or omission that causes him/her damage or affliction and that is produced in any relationship where there is the expectation of trust.” http://www.inpea.net/ (E3).</p> |
| (b) Violence as a violation human rights | <p>“Physical and/or psychological violence, including verbal and emotional violence. Cases of negligence, abandonment and extortion both by relatives or organizations where the old people are included. Repeated violation of rights, especially in respect of the participation of the old people as people with the right to self-determination and personal autonomy”(E4).</p> |

As for acknowledgement of the phenomenon of elder abuse in Portugal, some categories of abuse/violence are identified – Table 2, they refer to lack of information, thus implying their non-recognition (E1), the legal acknowledgement included in the penal code and in the law on domestic violence – Law No. 112 (2009), (E2, E3) – and the acknowledgement that the indicators of physical violence, negligence and abandonment are detected (E4). In some other circumstances it is harder to identify violence, especially when these circumstances are included in professional practices (E4).

Table 2
Acknowledgement of Violence Against Older People in Portugal

| | |
|---|--|
| (a) No acknowledgement | “Inexistence of information regarding crimes in terms of age level”(E1). |
| (b) Legal acknowledgement | <p>“Yes but not enough. There is a legal framework in the Portuguese Penal Code, in the National Plan to fight domestic violence, etc., but sometimes there is too much media attention on situations of economic abuse (and others), which exaggerate though they help express problems of Victims (E2).</p> <p>“It is included in family abuse – domestic violence has been considered a public crime since 2000 but there is still a mentality centred on the privacy of the family; however, we see a tendency for a change of attitude and greater liability of aggressive actions committed against other people”(E3).</p> |
| (c) Acknowledgement only in certain circumstances | “That acknowledgement is above all more visible in respect of physical violence, negligence and abandonment. I believe that the violation of the full citizenship rights of this population group continues to be ignored, a situation even more serious when the professionals that have the obligation to defend them are the first ones to violate them (...) E.g.: the social worker that places an old people person into a senior-citizen home exclusively based on the decision of the family and without listening to the old people in question”(E4). |

As for the entities that have contributed to the acknowledgement of violence against the old people, the interviewees unanimously point to the media (E2, E3, E4), although they did acknowledge other agencies also, such as: the national network for support for the victim and non-governmental organizations that provide support to the victim (E2), the Prosecuting Authority and some professionals (E3), as well as the Ombudsman [*Provedor de Justiça*] through the older people citizen line (E4). As for the frequent kind of abuse, the respondents referred to all kinds of existing ill-treatment and abuse (E2, E3, E4) and

provided examples such as “*physical abuse, verbal abuse, emotional abuse, negligence and financial extortion*” (E1).

Table 3
Main signs/Symptoms in the Detection of Abuse/Violence

| | |
|---------------------------------------|---|
| (a) Physical, emotional/psychological | <p>“Besides physical symptoms, the old people feels fear, apathy and have difficulty in making decisions. Thy also have low self-esteem. Sometimes financial extortion is also common”(E1).</p> <p>“Physical signs are behavioural changes, isolation, difficulty interacting with others, agitation, apathy, fear behaviour or postures” (E2).</p> <p>“Physical and emotional signs in the old people. Changes in routine. Alterations of behaviour. Excessive dependency on the caregiver. Unhealthiest. Isolation. Economic need. Alerts from friends and neighbours”(E4).</p> |
| (b) Behavioural | <p>“Behavioural changes (when you know the victim) are probably the common indicator for all forms of abuse (...)”(E3).</p> |

In terms of signs or symptoms the detection of abuse of the old people, physical, behavioural and emotional ill-treatment are referred to in responses included in – Table 3. The physical signs were also linked to another category of violence, namely emotional/psychological violence. This representation, about the risk of violence, is in agreement with the recent study by Ferreira and Alves (2010), which reveals, precisely which are the physical and psychological indicators that stand out in violence against older persons. Respondents reported that both physical and emotional/psychological violence, produced changes of behaviour in the old people (E1, E2, E4) that can result in both apathy as well as passive or reactive, agitation (E3). These symptoms are also reported in the study by Ferreira and Alves (2010: 3) adding tension, feeling vulnerable, depressed and unable to sleep at night.

The a result of respondents considered both intentional and non-intentional violence as abuse/ill-treatment/violence. *Although passive (non-intentional) abuse is different from active (intentional), as it implies non-awareness and is non-intentional, it brings together similar reactions and consequences* (E1, E2). Despite this, non-intentional abuse was identified and sometimes excused by the lack of preparation/and training of professionals. One of the respondents identified some practices associated with violence against the older people, such as the

placing of the older people person in a senior-citizen home without his/her consent, as being non-intentional action. According to her, it is due to “*a lack of preparation/insufficient training on their part*” (E4).

Violence against the older people occurs in the context where they are located, at home or in healthcare or social institutions (Ferreira e Alves, 2010). The authors assumed that the most frequent abuse is practised at home, as the majority of people aged 65 years of age or over resides at home. In Portugal the number of people aged 65 years of age or over who are institutionalized in senior-citizen-type homes⁴ is approximately 55,266, which corresponds to 3.39 per cent of the total of old people individuals in Portugal. Of these, 37.85 per cent are 85 years of age or older (Ferreira and Alves, 2010; Martin and Neves, 2007).

Although the respondents operated in healthcare and social institutions, they considered that violence occurs especially within the family, particularly when the old person “*depends physically and emotionally on the caregiver*” (E1). This abuse can be “*financial, verbal and emotional abuse, abandonment*” (E3, E4). In the reports by Ferreira and Alves (2010), Bavel, M. V., *et al.*, (2010), Strümpel, and Hackl (2008) and in the recent study by WHO (2011), this aspect is highlighted, that is, violence perpetrated against the elderly in the home.

In this context of analysis there is still much to do to prevent domestic violence and intra-family, in the case of older people. As mentioned about 4 per cent of people aged 65 years and over living in residential care. With such social facilities there is also violence against the older people.

Two stated that whereas violence at home is perpetrated by the family caregiver, in the institutional context violence acquires multiple contours, as it can result both from the institution’s own rules and regulations, be committed by employees, volunteers and relatives as well as being a result of abandonment, lack of affection and deprivation of financial assets (E3, E4).

They considered that abuse was perpetrated by “*family relation relatives, especially sons/daughters*” (E1, E2, E3, E4), and also “*nephews/nieces*” (E1), “*grandchildren*” (E2) and the “*spouse*” (E3). According to Ferreira and Alves (2010) the sons and daughters are

more abusive to the level of negligence than the physical abuse. Husbands are abusive more at the level of financial and sexual violence (p. 3). As for knowledge of the categories of violence against the old people, the respondents showed that they had a general knowledge of these issues in sociological terms. However, three respondents showed a lack of knowledge of legislation regarding violence against the older people. Two of the respondents were unaware of legislation in this area (E1, E3), one stated that there is no specific framework for abuse and violence in this area (E2) and only one identified article 152 of the Penal Code (E4). Legislation in this area is framed in terms of general offences or intentional omission: crime is imputable to an individual who is responsible for negligence when the deed is non-intentional, which is also punishable by law (Penal Code and the Law of Domestic Violence).

As for the number of older victims of violence, those who worked professionally in the healthcare were in a better position to identify the statistics presented by APAV⁵ (2009). Those working in the social sector did not respond to these questions.

In terms of the characteristics of the victims, two respondents identified older people as: *“People of an advanced age with some functional and/or cognitive limitation; a caregiver with low economic resources or economically dependent on the old people and having conflicting relationship with the old person”* (E1, E4). Two stated that violence is more frequent against women (E1), some of them widows, and isolated older people (E2). *Ferreira and Alves (2010) show that those aged 80 and over are the most vulnerable to violence because they had these features, in many social facilities (Martin and Neves (2007).*

These cases were more frequent in the institutions where the respondent undertook their activity and were mostly *“women including widows, those with low income, the sick (generally with incapacity to perform basic daily functions), live alone and as isolated”* (E3).

In response to what theoretical perspective was taken by these respondents (or professionals) at the time of intervention in these cases?

The respondents provided three perspectives or illustrations – see Table 4. Two had a macro vision and identified wide-ranging theories, such as the ecosystems theory (E1, E2). One provided an integrated vision incorporating macro and micro levels, and which identified certain *modus operandi* which centred on the personal capacity of the achievements and expectations of the older people (E4).

Finally, one respondent provided a third vision, which was sceptical with respect to theoretical perspectives in this area, showed difficulty in understanding the behaviour of institutionalized elders by those who worked in the institution and referred to the self-victimization of the old people.

Table 4
Theoretical Perspectives

| | |
|---|---|
| (a) Macro vision of intervention | “Theory of social exchange, model of cross-generational violence and crisis intervention model”(E1).\$\$\$“Ecosystem vision that integrates psychiatric, psychological, social, cultural and environmental aspects and a holistic model that takes the same aspects into consideration. The problem should be seen as a request from a set of difficulties and not just as the person who has expressed it. The outline of steps to be taken should be based on a global international vision of the phenomena, looking for relational games”(E3). |
| (b) Integrated vision of intervention at micro, meso and macro levels | “Reflexive-therapeutic vision whose basic idea concerning the nature of social work is centred on the individual, intending to promote change and the development of people, inserted within a humanist-based philosophy. The following are characteristics of this vision: personal capacity building through personal promotion and achievement; a better well-being in society for individuals, groups and communities; interaction between the services user and the social worker is the path to modify and create new ideas; personal empowerment – personal reflection on one’s own feelings and way of life. Which means that we will be dealing with the psychosocial model, social advocacy and empowerment”(E1). |
| (c) Scepticism | “I leave it for the professionals and researchers that work on these issues, although it is quite clear that those who debate and talk about these issues do not work directly with the old people (...). And from the news, statistics, interviews one can obtain a great deal of knowledge (...) but always distanced from reality (...) For example, I had never heard the idea that sometimes the old people themselves psychologically induce aggression in caregivers in order to become victims and be able to accuse them (...)”(E1). |

The researcher wanted to know whether professionals had a notion about one or more of the entities responsible for the

prevention, protection and social integration of the victims of violence in our country. This knowledge is very important for intervention, as it enables one to infer whether professionals intervene and refer the situations that they diagnose in their professional activity.

“The State has the responsibility to define, in preschool education and within the syllabus objectives and guidelines for the basic and secondary levels of education, the guiding principles of a domestic violence crime prevention programme. The State ensures the promotion of domestic violence prevention policies, as foreseen in article 78 of the Diário da República [government gazette] 1st series no. 180–16 September 2009. By creating guides and educational products in schools that include themes such as education for gender equality; by creating educational informational materials for students, and carrying out awareness raising actions in schools. Furthermore, national awareness raising campaigns on the theme”(E2).

However, the State on its own is not capable of ensuring that older people victims of violence are fully protected. State institutions, therefore, have to join other institutions in which civil society (private profitable and non-profitable institutions) and with the professionals who work.

It is necessary to create guidelines for intervention and to create a net work for professionals working in this area, so that the prevention of abuse of the elderly becomes a reality in our country. The respondents stated that training is important and the development of programmes for *“specific training in the area of domestic violence to various professionals, to professional teachers in the areas of health and law, to detectives and staff at the coroner’s office”*, is important, as shown by article 79 of the *Diário ad Republican* [government gazette], 1st series, no. 180, of 16 September 2009.

Limitations of the Study

However, a major limitation of this study was the very small number of respondents from the professionals were contacted. Therefore, it was not possible to make any generalizations. Nevertheless, it was apparent that the four participating professionals displayed a certain amount of difficulty in conceptualizing and intervening in these cases. The respondents of this survey were able to

identify some of the indicators of violence against the old people, especially if these were explicit: physical violence, negligence and abandonment. They considered family members to be the main perpetrators of abuse, but they were also aware that, when institutionalized, older people may be doubly victimised. The respondents considered it important to develop specific training that enables risk indicators to be identified and to assist professionals when diagnosing, referring and protecting victims, and following up on transgressors.

Simultaneously it is necessary to improve the competence of social workers. Educational programmes and prevention campaigns to raise awareness and educate the public need to be undertaken so that they can identify signs of abuse and report related situations; to train other healthcare and social professionals with responsibilities in the protection of older people; to introduce guidelines that allow for procedures to be standardised, for home-based care programmes to improve the work of informal caregivers, and to establish quality monitoring and evaluation systems for the care.

Notes

1. Since its emergence and institutionalization of older people were always the object of the intervention of social workers. Example of this is the intervention with elderly immigrants in Richmond in Settlements Mary, and Jane Addams in Hull Houses (Carvalho, 2012b).
2. Violence committed by omission can be understood as negligence, whether intentional or involuntary. In the case of the Portuguese Penal Code, intentional omission is a crime imputable to the person committing the act and is considered negligence when non-intentional, and is also punishable by law (crimes of omission, chapter 37, in Dias, 2007: 905ff).
3. The interview was sent out in March 2010.
4. A senior-citizen home is a "facility where social support activities for the elderly are provided through collective housing, temporary or permanent in design, the supply of food, health care, hygiene and comfort, the promotion of sociability, entertainment and the

occupation of users' free time", in Despacho No. 7837, de 2002; and Despacho Normativo No. 12, de 1998.

5. Already referred to in the text when this issue is considered in Portugal.

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Indian Journal of Gerontology

2014, Vol. 28, No. 3, pp. 431–439

Falling Elderly in Urban Ludhiana, North India – Prevalence and Epidemiological Correlates

Daisy Anu David and Clarence J. Samuel

Department of Community Medicine, Christian Medical College,
Ludhiana 141008

ABSTRACT

This study aimed to add to the knowledge on the prevalence and epidemiological profile of fallers in an urban fast growing city Ludhiana in North India. A cross sectional study was conducted on 100 elderly subjects to assess the prevalence and risk factors for falls in the elderly. The rate of fall was 106 per 100 person years. The prevalence of fallers was 42 per cent, recurrent fallers was 25 per cent and 13 per cent had fractures. Of the fracture distribution were hip 23 per cent and fracture femur and tibia (15%). Prevalence was 47.5 per cent in women and 32 per cent in men ($p = 0.06$), 81.8 per cent. Age above 80 years had. daily 3–5 medication t 51.5 per cent ($p = 0.035$). The prevalence of fall was 42 per cent among hypertensive patients, 45 per cent among diabetics, 41.9 per cent among with cataract, 43.7 per cent with history of constipation and 64 per cent had diarrhea prior to fall. A total of 39 per cent were obese, 21 per cent overweight and 29.2 per cent had normal BMI. Fallers who were obese (46.1%) and overweight (23%) had fractures. It was concluded that falls among the elderly has reached epidemic proportions in India. Women, increasing age, more than three medication per day and obesity are risk factors for falling.

Keywords: Elderly, Falls, Hypertension, Community Dwelling, Diabetes, Fractures, Medications, Obesity

The world is undergoing a modern demographic revolution. Today, there are around 600 million persons aged 60 years and over worldwide and will reach virtually two billion by 2050. According to the WHO about 200 million out of the 350 million elderly population are in the developing countries (World Health Forum, 1995).

The life expectancy of Indians has increased from 56.6 to 63.7 during the last 20 years due to the success in control of infectious diseases and the improved standards of living (Human Development Report 2013). Nearly 8 per cent of India's population is comprised of people above the age of 60 years (Census of India, 2001).

Fall in elderly people is a world-wide problem and ageing population is increasing the burden of these injuries on our health care system (Gibson 1987, Woolcott, 2009). About one third of 65 years old or older persons living in the community and more than half of those living in the institutions fall every year and about half of those who fall do so repeatedly. With the increasing age and disability both the incidence of fall and the severity of complication increases.

While the proportion of falls resulting in fracture is low, the absolute number of older people suffering fracture is high placing heavy demands on health care system. Hip fracture being the most common, the most devastating and the most costly for our modern health care system to treat. The elderly with hip fracture 25 per cent would die within 6 months, 60 per cent would have restricted motility and the rest 25 per cent would remain functionally more dependent.

Even in western countries nearly 80 per cent of non-injurious falls are never reported to health system. Depression, fear of falling and other psychological problems – “post-fall syndrome” – are common effects of repeated falls. Even when there has been no injury falls can result in a loss of self-confidence, social withdrawal, confusion and sometimes loneliness.

Methodology

Design of Study

This cross-sectional study was conducted on the geriatric population in the field practice area of Urban Health Center of the Community Medicine Department, Christian Medical College, Ludhiana. The study was conducted from June 2012 to July 2012.

Sampling

The total population of the area under this study was 30,000 of which the geriatric population was 1500 (aged 65 years and above) as per the database of the Family Folder System. Total 100 participants (male = 37 and female = 63) were selected by simple random sampling. Initially 150 elderly were chosen for the study but 24 elderly declined to participate in the study and remaining were not contacted. The subjects who were bed ridden for more than 12 months were not included in the study.

After taking written consent from the participants, each participant was interviewed using a pre tested questionnaire in the local language at their own home. Anthropometric measurements were recorded with standardized instruments. Balance and gait was assessed using the Tinetti scale (Tinetti, 1998).

Of the 100 elderly who participated in the study, 42 per cent were in the age group of 65–69 years, 24 per cent in the age group 70–74 years and those in the age group of more than 85 years was only 8 per cent. Majority of the participants were in the age group of 65–69 years of age. The mean age was 72.1 years.

The prevalence of hypertension was 50 per cent, 11 per cent has had a previous attack of angina or myocardial infarction, 24 per cent with diabetes, 31 per cent with cataract, 16 per cent complained of constipation, 14 per cent with loose motions and 1 per cent who has had a previous history of stroke.

As high as 62 per cent of the subjects were on anti hypertensive drugs, 22 per cent on oral hypoglycemic, 15 per cent on NSAIDs, 11 per cent on sedatives. The study had 15 per cent of the elderly were financially independent while 16 per cent were only partially

dependent and 69 per cent of the elderly were solely dependent on their children,.

The majority (72%) of the elderly live with their spouse and children, 21 per cent with their children and 3 per cent live with their spouse. 2 per cent of the elderly live alone and 2 per cent of them live with their siblings or with their other relatives.

The Data was entered in Epi Data and was analysed using Epi Data Analysis (Lauritsen J.M. 2008).

Results and Discussion

In this study 42 per cent of the elderly had experienced a fall in the past 1 year. And out of this, 17 per cent had fallen once, 9 per cent had fallen two times, 8 per cent had fallen 3–5 times and 8 per cent had more than 5 falls in the last one year. The total number of falls in the population was 106 per cent falls. The prevalence of fall was 106 per cent in the population with a 42 per cent population who have experienced falls. Nearly 13 per cent of the falls resulted in fractures, in which majority of them had fracture of the hip bone (23%) followed by femur and tibia (2% each). Among those who have fallen, 40.48 per cent (17) have fallen only once, the rest 59 per cent (27) have fallen multiple times. 38 per cent (16) have fallen more than 3 times in the past one year.

Out of 100 subjects who participated, 4 patients refused to participate in the Tinetti Test hence only 96 subjects were included. 67 per cent of them had a low Tinetti score. 15 per cent and 14 per cent of them had moderate and high score respectively.

Table 1
Distribution of Medication Intake by History of Fall in the Past Year

| <i>Number of Medications Per day</i> | <i>Not Fallen in the Past Year (%)</i> | <i>Faller in the Past Year (%)</i> | <i>Total</i> |
|--|--|--|--------------|
| Nil | 18 (69.33) | 8 (30.77) | 26 |
| 1-2 | 24 (61.34) | 15 (38.46) | 39 |
| 3-5 | 14 (48.28) | 15 (51.72) | 29 |
| 6-10 | 0 | 2 (100) | 2 |
| Non allopathic preparations | 2 (50) | 2 | 4 |
| Total | 58 | 42 | 100 |

Nearly 39 per cent of the elderly take 1–2 drugs daily and out of this 15 (38.41%) had fallen in the past 1 year. Out of the 29 of those who take 3–5 tablets a day the percentage of fall was 51.52 per cent (15). Out of the 100 elderly participants only 2 of them were taking 6–10 drugs per day and both of them (100%) experienced fall in the past 1 year.

The prevalence rate of falls was 106 per 100 person years . The prevalence of fallers in population was 42 per cent similar to studies done in Canada which had 41.1 per cent fall , while in Trivandrum, Kerala in 2005 Johnson found a prevalence of fall to be 45 per cent of community dwelling participants and in Chandigarh, Joshi (2003), got a prevalence of 51.1 per cent. 17 per cent of the population had a single fall in 1 year while 27 per cent had multiple falls. The recurrent fall rate was observed to be 25 per cent which was almost comparable to a cohort study conducted to predict the recurrent falls in the community dwelling elderly which was 16 per cent. The risk of fall with increasing age in this study showed a significant trend with a chi square for trend value as 5.06 (p value of 0.02).

Table 2
Comparison of Fallers in the Past Year by BMI

| <i>BMI (Indian Cut-offs)</i> | <i>Not Fallen in the past year (%)</i> | <i>Faller in the past year (%)</i> | <i>Total</i> |
|------------------------------|--|------------------------------------|--------------|
| <18.5 | 7 (63.6) | 4 (36.4) | 11 |
| 18.6–22.9 | 12 (50.0) | 12 (50.0) | 24 |
| 23–25 | 13 (59.1) | 9 (59.1) | 22 |
| >25 | 22 (57.9) | 16 (42.1) | 38 |
| Total | 54 (100.0) | 41 (100.0) | 95 |

The present study showed that majority of the falls were in the age group of 65–69 years of age (33.3%), While fall rate among those above 85 years was 50 per cent, it was observed that the proportion who fell increases with age from about 30 per cent in the 65–69 years age group to over 50 per cent in those over 85 years. In 2009, the rate of fall injuries for adults aged 85 and older was almost four times that of adults 65 to 74 years (CDC, 2013).

Rates of fall related fractures among older women are more than twice those for men (Stevens, 2005).

Table 3
*Comparison of Falling by the Presence of Medical Conditions**

| <i>Medical Condition</i> | <i>Fallen in Past Year</i> | <i>No Falls in Past Year</i> | <i>Total</i> |
|--------------------------|----------------------------|------------------------------|--------------|
| Hypertension | 21 (42%) | 29 (48%) | 50 |
| Heart Disease | 8 (50%) | 8 (50%) | 16 |
| Depression | 4 (57.1%) | 3 (42.9%) | 7 |
| Diabetes | 11 (45.8%) | 13 (54.2%) | 24 |
| Cataract | 13 (41.9%) | 18 (50.1%) | 31 |
| COPD/Asthma | 10 (45.45%) | 12 (54.54%) | 22 |
| GI Complaints Diarrhoea | 9 (64.29%) | 5 (35.71%) | 14 |
| Constipation | 7 (43.75%) | 9 (56.25%) | 16 |
| Other | 3 | 7 | 10 |

*More than one condition may be present in one individual.

Only 13 per cent of all falls resulted in fractures, this is much lower than what Johnson (2006) got in Kerala and 21.3 per cent in Chandigarh. Hypertension, diabetes, depression, cataract and gastrointestinal problems are known risk factors for falls in elderly as Joshi (2003) reported in Chandigarh and Johnson (2006) reported through the Kerala Health Survey.

The number of medication a person takes is also a risk factor for falls as people who take more than 3 tablets a day had a higher risk of fall. The chi square of 3.67 with a p value of 0.035. A study conducted to analyse the impact of 9 medication classes on falls in elderly persons demonstrated an increased likelihood of fall with the use of sedatives and hypnotics, neuroleptics and antipsychotics, antidepressants, benzodiazepines and non-steroidal anti-inflammatory drugs. (WHO 1995). In a cohort study of 139 elderly (women, 84%) it was seen that the incidence rate of falls among those using oral hypoglycemic agents was 78 per cent and those without diabetes was 30 per cent (Mathew, 2005).

Majority of the falls and fractures were seen among those who had a higher BMI. (there was no statistically significant association

between falls, fractures and BMI). The more serious injuries were among those among higher BMI.

Table 4
Comparison of Fallers and non Fallers by Gender and Tinniti Scores

| <i>Gender</i> | <i>Tinniti Score</i> | <i>Faller (%)</i> | <i>Non Faller (%)</i> | <i>Total</i> |
|----------------------|----------------------|-------------------|-----------------------|--------------|
| Female | High | 5 | 4 | 9 |
| | Moderate | 5 | 4 | 9 |
| | Low | 19 | 22 | 41 |
| Total Females | | 29 | 30 | |
| Male | High | 3 | 2 | 5 |
| | Low | 1 | 5 | 6 |
| | Medium | 8 | 18 | 26 |
| Total Male | | 12 | 25 | 37 |

Tinetti balance and gait scores were used for assessing the future risk of fall in the elderly. The study showed that 67 per cent of the population had a low score indicating a higher risk of future fall. There was no statistically significant relation between age, falls in 1 year and Tinetti balance and gait score. This could have association of environmental risk factors for the falls as Tinetti assesses only the gait abnormality of an individual. The Tinetti Balance and Gait Evaluation tool can be used in Indian settings to predict fall. It is acceptable and easy to administer among the urban population in North India. There was no statistically significant relationship between occupation, education, tinetti score, gender and falls. The majority of falls occurred at home. Poor lightning, slippery floors no guard rails etc contribute to falls. Modifications like a bed switch, night lights, a glass of water at the bed side would prevent falls.

Limitations

This study does not have data of fatal falls or mortality following falls or the environmental factors affecting falls.

Conclusion

Falls are a growing public health problem in ageing India. Women, increasing age, more than three medication per day and obesity are risk factors for falling. The majority of falls are predictable

hence preventable. Falls need to be documented in Community or population based registries and surveillance systems need to be strengthened to reduce the burden of fractures due to falls. Active ageing programmes and other targeted strategies with local application need to engage our elderly population as active healthy participants in global economy .

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