



# GERIATRIC CONCERNS - ACTIVITIES OF DAILY LIVING, NUTRITION, SOCIAL SECURITY MEASURES IN A COASTAL SOUTH INDIAN POPULATION

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## ABSTRACT

**Background:** Globally 10% of the world's population is elderly and is expected to increase to 21% by 2051. The primary health care system is not geared up to meet the future challenges arising from the increased demands of the geriatric population.

**Methods:** A cross sectional study was conducted among elderly residing in the rural field practice area of a medical college in coastal Karnataka. Detailed information about socio - demographic profile, activities of daily living and dietary pattern was collected by personal interviews.

**Results:** Of the 247 participants, 172 (70%) were females and 75 (30%) were males. There was no impairment in performing activities of daily living among 93.5% of the population. Half of the study participants (51.8%) were aware of social security schemes available for the elderly. About 119 (48.2%) were insured for health whereas only 22 (8.9%) were insured for life. The diet was deficient in protein and calories among nearly 40% of the elderly.

**Conclusions:** Among the elderly only 6.5% of them had impairment in performing activities of daily living. Over 65% of the individuals were socially secure. Two-fifths of the elderly were consuming a diet deficient both in proteins and calories.

**Key words:** Elderly, Activities of daily living, nutrition, social security measures.

## INTRODUCTION

The phenomenon of population ageing is becoming a major concern for the policy makers all over the world, for both developed and developing countries. Ageing of population is affected due to downward trends in fertility and mortality i.e., due to low birth rates coupled with long life expectancies.<sup>1</sup> The UN defines a country as 'ageing' where the proportion of people over 60 reaches seven per cent. <sup>2</sup> By 2000 India will have exceeded that proportion (7.7%) and is expected to reach 12.6% in 2025.<sup>2</sup> According to the 1961 census, India had an elderly population of just 25 million, trebled to 76 million in 2001 in the span of 50 years.<sup>3</sup> For a developing country like India, this may pose mount-

ing pressures on various socio economic fronts including provision of health care, pension outlays, health care expenditures, savings etc. There is an emerging need to pay greater attention to ageing-related issues and to promote holistic policies and programmes for dealing with the ageing society.<sup>1</sup> The primary health care system is not geared up to meet the future challenges arising from an increase in chronic diseases. Mobilizing additional resources for geriatric care will emerge as a major responsibility of health care providers.<sup>3</sup> Functional status is an important component of health status of the elderly. One of the most common methods of assessing functional ability in a broader sense is in terms of people's ability to perform tasks of

daily living (ADL). Not only is performance in this area related to mental and physical health; it may also determine social well-being. Of particular concern here is whether it is feasible to live independently, whether the provision of some type of service may make continued community residence possible or whether incapacity is such that it is necessary to move to a specialized residential setting.<sup>4</sup> Nutrition plays a significant modulating role in aging process and is an important component in the health of elderly. Nutritional status contributes to the development and progression of chronic diseases and outcome of co-morbid conditions among elderly.<sup>5</sup> The Central and State governments have made efforts to tackle the problem of economic insecurity by launching policies such as the National Policy on Older Persons, National Old Age Pension Program, etc. However, the benefits of these programs have been questioned several times in terms of the meager budget, improper identification of beneficiaries, lengthy procedures, and irregular payment. In most of the developing countries, pension and social security is restricted to those who have worked in the public sector or the organized sector of industry.<sup>6</sup> With these concerns hovering around the rising geriatric population in the country, the current study was designed to assess the activities of daily living, available social security measures and nutrition intake of the rural elderly.

### MATERIALS AND METHODS

A cross sectional study was conducted among the elderly population residing in the rural field practice area of Department of Community Medicine, Kasturba Medical College, Manipal University, Manipal in coastal Karnataka. The rural field practice area is functional for the last 50 years, wherein regular surveys are conducted and the statistics are updated. The field practice area covers a population of 50,000, of which 12.2% is constituted by people aged over 60 years and this information was obtained from the database.

Anticipating 20% prevalence (p) for the presence of some impairment in Activities of Daily Living (ADL),<sup>7</sup> with an absolute precision (d) of 5% and 95% confidence level (formula= $4pq/d^2$ ), the estimated sample size was 246. Convenience sampling was used to select the houses. All members in the selected household more than 60 years, present at home at the time of visit and consenting to participate were included. Ethical approval was obtained from the institutional ethics committee, before initiation of the study.

Data was collected using a pre-tested, semi-structured questionnaire. Detailed information about socio-demographic profile, chronic health

conditions and activities of daily living<sup>8</sup> were collected. The various physical activities of daily living used for assessment were bathing, dressing, toileting, transferring, continence and feeding. Instrumental activities of daily living domains included ability to use telephone, shopping, food preparation, housekeeping, laundry, mode of transportation, responsibility of own medications and ability to handle finances.<sup>8</sup> A 24 hour recall method was used to assess the dietary pattern of the subjects. Standard measuring cups developed by the National Institute for Nutrition (NIN)<sup>9</sup> were used to quantify the food consumed. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 15 and results are expressed as percentages and proportions.

### RESULTS

The study included 247 subjects, with 75 (30.4%) men and 172 (69.6%) females. The socio-demographic characteristics of the participants are depicted in Table 1. Mean age of the subjects was 70.1 years (SD: 7.9). Almost 200 (81%) of them were Hindu by religion. A majority of the participants (81%) were residing in pucca house.

**Table 1: Socio-demographic characteristics of the study population (n=247)**

Characteristics	Males (n=75)	Females (n=172)	Total (n=247)
Age group (years)			
60 - 69 (Young old)	39 (52.0)	89 (51.7)	128 (51.8)
70 - 79 (Old old)	24 (32.0)	60 (34.9)	84 (34.0)
≥80 (Oldest old)	12 (16.0)	23 (13.4)	35 (14.2)
Religion			
Hindu	58 (77.3)	142 (82.6)	200 (81.0)
Christian	14 (18.7)	24 (14.0)	38 (15.4)
Muslim	3 (4.0)	6 (3.5)	9 (3.6)
Education status			
Illiterate	9 (12.0)	66 (38.4)	75 (30.4)
1 <sup>st</sup> - 7 <sup>th</sup> standard	35 (46.7)	75 (43.6)	110 (44.5)
8 <sup>th</sup> -12 <sup>th</sup> standard	18 (24.0)	22 (12.8)	40 (16.2)
Graduates & Professional	13 (17.4)	9 (5.2)	22 (8.9)
Marital status			
Married	61 (81.3)	61 (35.5)	122 (49.4)
Widowed	11 (14.6)	109 (63.4)	120 (48.6)
Single	3 (4.0)	2 (1.2)	5 (2.0)
Occupation			
Working	9 (12.0)	6 (3.5)	15 (6.1)
Not working	66 (88.0)	80 (46.5)	146 (59.1)
Housewife	0	86 (50.0)	86 (34.8)
Living arrangement			
Alone	2 (2.7)	8 (4.7)	10 (4.0)
With family members	73 (97.3)	164 (95.3)	237 (96.0)
Having regular source of income	49 (65.3)	110 (64.0)	159 (64.4)

Household latrine was present in 97.2% of the households. Source of water was well for about 123 (49.8%) and either household or public tap for about 164 (62.3%) subjects. Out of the 247 participants, 159 (66.4%) had regular source of income. Most of them (n = 170, 68.6%) were supported by their children.

**Tobacco and alcohol use**

History was obtained regarding smoking, tobacco chewing and alcohol consumption. More than 80% of participants were non-smokers and not consuming alcohol. Among 31 ever smokers, eight (25.8%) were current smokers while 23 (74.2%) were past smokers. About 40 (17.2%) of the subjects were ever users of alcohol. Although tobacco chewing was more prevalent than smoking, 178 (72.1%) had

never used tobacco. Among the 45 elderly subjects who were currently chewing tobacco, 29 (64.4%) were women.

**Table 2: Chronic illnesses reported by the geriatric population (n=247)**

Chronic illnesses	Number (%)	Subjects with chronic diseases on regular Treatment (%)
Diabetes mellitus	61 (24.7)	53 (86.8)
Hypertension	122 (49.4)	111 (91.0)
IHD	25 (10.1)	25 (100.0)
Bronchial asthma	21 (8.5)	19 (90.4)
Osteoarthritis	48 (19.4)	30 (62.5)

\*Ischemic heart disease

**Table 3: Assessment of Activities of Daily Living (ADL) among the elderly (n=247)**

ADL	60-69 years (n=128) (%)	70-79 years (n=84) (%)	≥80 years (n=35) (%)	Total (n=247) (%)
No impairment	123 (96.1)	77 (91.7)	31 (88.6)	231 (93.5)
Moderate impairment	4 (3.1)	5 (6.0)	1 (2.9)	10 (4.0)
Severe impairment	1 (0.8)	2 (2.4)	3 (8.6)	6 (2.4)

Chi-square for trend= 5.170, p=0.023

**Chronic diseases**

Self-reported information regarding chronic diseases like diabetes mellitus, hypertension, ischemic heart disease, bronchial asthma and osteoarthritis obtained from the elderly has been described in Table 2. Hospital and/or laboratory reports pertaining to the disease and medications for the same were verified to confirm the presence of the disease. Almost 68 (27.5%) had been hospitalized in past one year for various reasons.

**Activities of daily living:**

Physical activity of daily living was assessed by enquiring on the ability to eat, dress, take care of own appearance, walk, getting in and out of bed, ability to walk and getting into bathroom/toilet on time. <sup>7</sup> There was no impairment to carry out activities of daily living among 231 (93.5%) elderly, as shown in Table 3. Among 16 subjects who had impairment, ten individuals (4%) had moderate impairment, while only six (2.4%) had severe impairment. Impairment was more prevalent among females (62.5%) as compared to males (37.5%). Severity of disability increased with advancing age (p<0.05).

**Social security schemes and Utilization of health services**

Half of the study participants (51.8%) were aware of social security schemes available for the elderly. About 119 (48.2%) were Insured for health whereas

only 22 (8.9%) were Insured for life. A majority of 221 (90%) were availing treatment facilities from allopathic system of medicine while 41 (16.6%) were taking Ayurvedic medications. About 90% were receiving treatment from private hospitals.

**Dietary pattern**

The 24 hour dietary recall method used to collect dietary pattern of the geriatric population, revealed that 103 (41.7%) and 99 (40.1%) had deficient intake of calories and proteins respectively in their diet.

**DISCUSSION**

Demographic changes influence health, economic activity and social condition of people.<sup>2</sup> In India there has been a sharp increase in the number of elderly persons between 1991 and 2001 and it has been projected that by the year 2050, the number of elderly people would rise to about 324 million. India has thus acquired the label of an ageing nation with 7.7% of its population being more than 60 years old.<sup>6</sup>

The demographic characteristics of the present study with respect to age distribution and religion was similar to a study from Pondicherry, but in the current study there were more literates as compared to Tamil Nadu<sup>10</sup> and Pune.<sup>11</sup> Considering the elderly people who were working, the proportion

was higher in Northern India which differed from the present study.<sup>11</sup>

Over 95% of the elderly subjects were staying with family members in this coastal population concurring to the survey findings from Pune<sup>11</sup> and rural South India.<sup>12</sup>

80% of LASI respondents lived in households which did not have access to running water in the home, and 45% did not have access to an "improved water source". Sixty percent lived in households without proper sewer systems.<sup>7</sup> These findings were in contrast to our study findings, where the living conditions were far better.

More than 70% of participants had never used tobacco in any form in this coastal belt, while Thakur et al reports that nearly 60% of the elderly were using some or the other form of tobacco.<sup>11</sup> Female predominance was noted among the subjects who were currently chewing tobacco in the present study, but there was role reversal in Pune with more prevalent tobacco consumption among males.<sup>11</sup>

Chatterji et al. reported that almost one-half (47 percent) of older Indians have at least one chronic disease such as asthma, angina, arthritis, depression, or diabetes,<sup>13</sup> while in the present study self-reporting of chronic diseases like hypertension and diabetes was 49% and 25% respectively. These findings differed from the study done in rural and urban areas of Pune.<sup>11</sup> Paul et al from rural Tamil Nadu also reported a lower proportion of comorbidities among a rural geriatric population.<sup>14</sup> Elderly in urban Puducherry<sup>15</sup> had a similar morbidity profile to this coastal population.

Physical activity of daily living was assessed by Physical ADL assessment scale.<sup>8</sup> Only 6% of the elderly had impairment in physical activity of daily living which concurred with the findings from urban Puducherry<sup>15</sup> and Shimla<sup>16</sup> but other published literature from India, reported higher impairment.<sup>7,12,14</sup> The present study noted that female gender and advancing age had more impairment similar to the LASI respondents<sup>11</sup> and elderly subjects from Shimla.<sup>16</sup> In a study from rural Haryana functional disability among elderly was higher in spite of lesser proportion of co-morbidities among them.<sup>17</sup>

Fewer than 10 percent of Indians have health insurance from private or public sources, according to national surveys<sup>18</sup> while in the coastal area 48% were insured for health and over 65% had regular source of income and were supported by their children, which is a very positive observation.

There is relatively little data on the prevalence of under nutrition among the elderly in the develop-

ing world. The 24 hour dietary recall method used in the present study revealed that over 40% had deficient intake of calories and proteins, similar to a study in the southern Peninsular Malaysia, where the reported mean energy intake for both sexes was lower than the Malaysian RDA.<sup>19</sup> In contrast, none of the community-dwelling aged population was found to be malnourished, in rural Tamil Nadu.<sup>14</sup> Under nutrition of the elderly is a substantial problem globally. Even though science and practice have improved, the problem is still insufficiently understood, and measures to identify, quantify, prevent and treat are not clearly established.

In India it is expected that older people will be taken care of within the homes of their families. However, with changing economic and social norms, families are finding it increasingly difficult to undertake these responsibilities. So, policymakers, mass media, civil society and the general population need to be made aware of this demographic transition, the needs of older people and the measures that can be taken to respond to these needs.<sup>20</sup>

## CONCLUSIONS

The rural geriatric population was fit and functional as there was no impairment in performing activities of daily living among 93.5% of the elderly. Although there is scope for enhanced coverage of social security measures, still the elderly in the area were socially secure as nearly 66% had regular source of income and 69% were supported by their children. Nearly 40% of the elderly had a deficiency in their diet with respect to proteins and calories, which needs to be addressed further.

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