Research Article

Assessment of morbidity pattern and its correlates among elderly population in rural area of Perambalur, Tamilnadu, India

Rakesh Kumar[*] and Mohammed Shafee

Department of Community Medicine, Dhanalakshmi Srinivasan Medical College and Hospital, Siruvachur, Perambalur-621212, Tamil Nadu, India

*Correspondence Info:
Dr. Rakesh Kumar
D-12, Staff quarters, DSMCH Campus,
Siruvachur, Perambalur, State- Tamilnadu, India.
E-mail: drrakesh_kumar2001@yahoo.com

Abstract

Introduction: In India, both the share and size of elderly population is increasing over time. Unfortunately, the rapidity of population ageing is expected to outpace social and economic development in developing countries particularly in countries like India.

Objectives: To study the prevalence of morbidities in elderly aged 60 and above and to find the socio-demographic factors associated with these morbidities.

Material and Methods: The present cross sectional study was carried out at the field practice area of Rural Health Centre, at a medical college in South India. The study population comprises of all geriatric population aged 60 years and above in the study area. The survey was done by house to house visit. The study subjects were subjected for personal interview using a pre-tested and semi-structured interview schedule. Statistical analysis is carried out using SPSS Version 17.

Results: Most of the elderly people (54.5%) were in 60-64 yr age group. Morbidity was present in 139 (65.2 %) of elderly people. Common morbidity among elderly people were related to oral cavity & salivary glands 129 (69.6%); musculoskeletal system 114 (53.4%); eye & adenexa 85 (39.9%); endocrine, nutritional & metabolic diseases 60 (28.2%); Ear & mastoid process 45 (21.1%) and skin diseases 42 (19.7%). Increasing age and female gender was the two significant risk factors found to be associated with presence morbidity in the present study.

Conclusion: Greater, targeted efforts are needed to identify at-risk elderly people living in the community and to provide them with elderly-friendly primary geriatric care services that may reduce the burden of unmet need.

Keywords: Geriatrics, Elderly, Morbidity, Aging

1. Introduction

Ageing is a universal process. Population ageing is the result of demographic transition with reduction in fertility leading to decline in the proportion of young in the population and at the same time there is increasing longevity. Today, worldwide there are 600 million persons aged 60 and over; this total will double by 2025 and will reach virtually two billion by 2050.[1] Most of them will be living in developing countries which are often least prepared to meet the challenges of rapidly ageing societies.[2]

In India, both the share and size of elderly population is increasing over time. In India, currently 7.4% of the populations are elderly (60+) and it is expected that this will reach 12.6% in 2025 and 21.0 % by 2050.[3]Unfortunately, the rapidity of population ageing is expected to outpace social and economic development in developing countries particularly in countries like India.[3] WHO says "Developing countries will become old before they become rich while industrialized countries became rich while they were growing old.[4] There are limited social security systems for elderly and most of these Social Security Systems are for the Organized Sectors. Help age India says 90% of older persons are from the unorganized sector, with no social security at the age of 60.[5]

Industrialization, urbanization, education and exposure to western life styles are bringing changes in values and life style. Instead of strong family ties in India, the position of a large number of old persons has become vulnerable due to which they cannot take for granted that their children will be able to look after them. Old age is not a disease in itself, but the elderly are vulnerable to long term diseases of insidious onset such as cardiovascular illness, CVA, cancers, diabetes, musculoskeletal and mental illnesses.[2]They have multiple symptoms due to decline in the functioning of various body functions. Increasing problems of health care, psycho-social, personal and socio-economic factors associated with the elderly further overwhelms this.

The assessment of morbidity pattern and its determinants will help the in planning of medical and social interventions to improve the health status and quality of life of elderly people. Hence, this study was planned in the field practice area of a medical college in south India with the objectives:

1. To study the prevalence of morbidities in elderly aged 60 and above.
2. To find the socio-demographic factors associated with these morbidities.

2. Materials and Methods

The present community based Cross sectional study was carried out at the field practice area of Rural Health Centre, at a medical college in South India which has eleven villages covering total population of 12000. Three villages were selected randomly out of these 11 villages for the study purpose. The study population comprises of all geriatric population aged 60 years and above in the three randomly selected villages. After house to house enumeration total number of elderly population aged 60 years and above residing in the selected villages was 274.After excluding the non-respondents and locked homes after at least 3 visits, 213 respondents out of 274 subjects were recruited for the study giving a response rate of 77.7%. Approval from the Institutional Ethical Committee was obtained to conduct the study. The survey was done by house to house visit. The study subjects were subjected for personal interview and physical examination by the investigator who is a qualified medical doctor at their residence using a pre-tested and semi-structured interview schedule. Clinical examinations and checking of individual records were also used as study tools in order to collect data on demographic, socio-economic and morbidity conditions. Informed consent was taken from the study subjects prior to interview and physical examination.

Data collection was done from June 2013 to August 2013. Information was collected by the study subjects regarding socio-demographic details, medical information (chief complaint, past history, personal history and family history), general physical examination (built, nutrition, general mental status, height, weight, pulse rate, respiratory rate, Blood Pressure, pallor, and pedal edema), systemic examination (Respiratory System (RS), Cardio Vascular System (CVS), Central Nervous System (CNS), Gastro-Intestinal Tract (GIT), Musculoskeletal, renal, skin, oral and special senses).Psychological status was also assessed. Diagnosis was made by using a manual for physician in primary and secondary health care facilities.[6]

Socio-Economic status of the family was assessed using Modified Prasad's socio-economic scale.[7] Data was entered into Microsoft excel. To estimate the prevalence of various health conditions of geriatric population, appropriate proportion (%) is worked out and to test the association of morbidity conditions with socio-economic parameters, statistical tests such as chi-square test was applied. Statistical analysis is carried out using SPSS Version 17.

3. Results

Most of the elderly people (54.5%) were in 60-64 yr age group. In the present study, out of 213 elderly, males were more in number 113(53.1%) than female 100 (46.9%)). Most of the participants 138 (64.8%) were illiterate, while 55(25.8%) of the elderly had gone through primary school education. Only 20 (9.4%) had undergone high school and above. Only 6 (2.8%) were living single either due to divorce, separation or unmarried. Majority were living in nuclear family 160(52.5%). (Table1)

Table 1: Socio-demographic profile of study population

Variable	Male (%) (N=113)	Female (%) (N=100)	Total (%) (N=213)	P- value
Age (in years)				
60-64	62 (53.4)	54 (46.6)	116 (54.5)	
65-69	26 (57.8)	19 (42.2)	45 (21.1)	X^2=0.93, df=2, P=0.66
70 and above	25 (48.1)	27 (51.9)	52 (24.4)	
Education				
Illiterate	76 (55.1)	62 (44.9)	138 (64.8)	
Primary	18 (32.7)	37 (67.3)	55 (25.8)	**X^2=23.48, df=2, P<001**
High school and above	19 (95.0)	1 ((5.0)	20 (9.4)	
Occupation				
Household work	11 (24.4)	34 (75.6)	45 (21.1)	
Labour	39 (58.2)	28 (41.8)	67 (31.5)	**X^2=19.03, df=2, P<001**
Farmer	63 (62.4)	38 (37.6)	101 (47.4)	
Marital status				
Married	111 (53.6)	96 (46.4)	207 (97.2)	X^2=0.32, df=1, P=0.42
Single (divorced, separated, unmarried)	2 (33.3)	4 (66.6)	6 (2.8)	
Type of family				
Nuclear	71 (54.6)	59 (45.4)	130 (61.0)	X^2=0.33, df=1, P=0.57
Joint	42 (50.6)	41 (49.4)	83 (39.0)	
Income (modified Prasad classification)*				
I (> 3648)	4 (44.4)	5 (55.6)	9 (4.2)	
II (1824-3648)	12 (57.1)	9 (42.9)	21 (9.9)	
III (1094-1824)	11 (39.3)	17 (60.7)	28 (13.1)	X^2=5.11, df=4, P=0.27
IV (547-1094)	37 (49.3)	38 (50.7)	75 (35.2)	
V (< 547)	49 (61.3)	31 (38.8)	33 (37.6)	

Morbidity was present in 139 (65.2 %) of elderly people. The prevalence of morbidity increased with the increase in age of study subjects with prevalence in various age group being 60-64 yr (56.9%), 65-69 yr (66.7%) and 70 yr and above (82.7%). The association of age and presence of morbidity in elderly was found to be statistically significant (X^2=10.59, df=2, P=0.005). The study did not find statistically significant association between presence of morbidity and other socio-demographic factors like sex, education, occupation, marital status, type of family and income. (Table 2)

Table 2: Association of socio-demographic characteristics with presence of morbidity among elderly people

Variable	Morbidity Present (%) (N=139)	Morbidity Absent (%) (N=74)	Total (%) (N=213)	P- value
Age (in years)				
60-64	66 (56.9)	50 (43.1)	116 (54.5)	
65-69	30 (66.7)	15 (33.3)	45 (21.1)	**X^2=10.59, df=2, P=0.005**
70 and above	43 (82.7)	9 (17.3)	52 (24.4)	
Sex				
Male	**67 (59.3)**	**46 (40.7)**	113 (53.1)	X^2=3.78,df=2, P=0.052
Female	**72 (72.0)**	**28 (28.0)**	100 (46.9)	
Education				
Illiterate	88 (63.8)	50 (36.2)	138 (64.8)	
Primary	38 (69.1)	17 (30.9)	55 (25.8)	X^2=0.49, df=2, P=0.78
High school and above	13 (65.0)	7 (35.0)	20 (9.4)	
Occupation				
Household work	33 (73.3)	12 (26.7)	45 (21.1)	
Labour	37 (55.2)	30 (44.8)	67 (31.5)	X^2=4.69, df=2, P=0.096
Farmer	69 (68.3)	32 (31.7)	101 (47.4)	
Marital status				
Married	136 (65.7)	71 (34.3)	207 (97.2)	X^2=0.43, df=1, P=0.42
Single (divorced, separated, unmarried)	3 (50.0)	3 (50.0)	6 (2.8)	
Type of family				
Nuclear	91 (70.0)	39 (30.0)	130 (61.0)	X^2=3.31, df=1, P=0.09
Joint	48 (57.8)	35 (42.2)	83 (39.0)	
Income (modified Prasad classification)*				
I (> 3648)	3 (33.3)	6 (66.7)	9 (4.2)	
II (1824-3648)	14 (66.7)	7 (33.3)	21 (9.9)	
III (1094-1824)	22 (78.6)	6 (21.4)	28 (13.1)	**X^2=7.78, df=4, P=0.1**
IV (547-1094)	52 (69.3)	23 (30.7)	75 (35.2)	
V (< 547)	48 (60.0)	32 (40.0)	33 (37.6)	

Common morbidity among elderly people were related to oral cavity & salivary glands 129 (60.6%); musculoskeletal system 114 (53.4%); eye & adnexa 85 (39.9%); endocrine, nutritional & metabolic diseases 60 (28.2%); Ear & mastoid process 45 (21.1%) and skin diseases 42 (19.7%). As compared to males a significantly higher proportion of female had morbidities related to ear & mastoid process (28% Vs 15%); digestive system (14% Vs 4.4%); respiratory system (22.0% Vs 4.4%); musculoskeletal system (70% Vs 38.9%) and endocrine, nutritional & metabolic diseases (63.3% Vs 19.5%). (Table 3)

Table 3: System-wise distribution of morbidity profile among elderly people

System	Male (%) (N=113)	Female (%) (N=100)	Total (%) (N=213)	P- value
Eye and adnexa	40 (35.4)	45 (45.0)	85 (39.9)	X^2=2.04, p=0.15
Oral cavity& salivary glands	63 (55.8)	66 (66.0)	129 (60.6)	X^2=2.33, p=0.13
Ear and mastoid process	17 (15.0)	28 (28.0)	45 (21.1)	**X^2=5.34, p=0.02**
Circulatory system	21 (18.6)	12 (12.0)	33 (15.5)	X^2=1.76, p=0.08
Respiratory system	5 (4.4)	22 (22.0)	27 (12.7)	**X^2=14.8, p<0.001**
Digestive system	5 (4.4)	14 (14.0)	19 (8.9)	**X^2=5.99, p=0.01**
Genitourinary system	4 (3.5)	5 (5.0)	9 (4.2)	X^2=0.28, p=0.59
Musculoskeletal system	44 (38.9)	70 (70.0)	114 (53.5)	**X^2=20.58, p=0.001**
Skin & subcutaneous tissue	23 (20.4)	19 (19.0)	42 (19.7)	X^2=0.06, p=0.80
Endocrine, nutritional & metabolic diseases	22 (19.5)	38 (63.3)	60 (28.2)	**X^2=9.0, p=0.003**
Nervous system	11 (9.7)	12 (12.0)	23 (10.8)	X^2=0.28, p=0.59
Psychological	5 (4.4)	10 (10.0)	15 (7.0)	X^2=2.52, p=0.11

The prevalence of underweight, overweight and obesity among elderly was 17.8%, 14.1% and 2.3% respectively. There was no significant association of BMI and sex. The prevalence of hypertension was found to be 29.1% in the present study. 89 (41.2%) of elderly were habituated or addicted to either tobacco chewing, smoking or alcohol intake. (Table 4)

Table 4: Distribution by physical characteristics of study subjects

System	Male (%) (N=113)	Female (%) (N=100)	Total (%) (N=213)	P- value
BMI (in Kg/m^2)				
Underweight (<18.5)	15 (13.3)	23 (23.0)	38 (17.8)	
Normal (18.5-24.9)	81 (71.7)	59 (59.0)	140 (65.7)	X^2=4.7, df=3, p=0.19
Overweight (25.0-29.9)	14 (12.4)	16 (16.0)	30 (14.1)	
Obese (>30)	3 (2.7)	2 (2.0)	5 (2.3)	
Hypertension				
Present	29 (25.7)	33 (33.0)	62 (29.1)	X^2=1.38, df=1, p=0.23
Absent	84 (74.3)	67 (67.0)	151 (70.9)	
Habbit/Addiction				
Present	54 (47.8)	35 (35.0)	89 (41.8)	X^2=3.57, df=1, p=0.06
Absent	59 (52.2)	65 (65.0)	23 (58.2)	

4. Discussion

As the age of elderly people increases there is a gradual decline in physical and mental condition of person. In the present study a high percent (65.2%) of elderly were suffering from at least one morbid condition. The study found a significantly significant association of age and presence of morbidity in elderly (X2=10.59, df=2, P=0.005). The prevalence of morbidity increased with the increase in age of study subjects with prevalence in various age group being 60-64 yr (56.9%), 65-69 yr (66.7%) and 70 yr and above (82.7%).This finding is supported by other studies from both rural and urban area.[8,9]

Diseases of oral cavity were noted in about 60.6% of the elderly. Dental caries was present in 47 (22.1%) of the respondents. 29.6 % had stained tooth and 8.9 % had broken tooth. Similar were the finding from other studies by Sijan Poudyal *et al* and Shraddha *et al*. Sijan Poudyal *et al* reported 29.9% tooth decay, 10.3% mobile tooth in their study while Shraddha *et al* reported 23.7% prevalence of dental caries among elderly males.[8,10] Overall prevalence of musculoskeletal disorders in present study were 53.4%. Common diseases found in this group were arthritis (17.4%), backache (22.0%), and myalgia(13.4%). Prevalence of arthritis is similar to some other studies.[8, 11] Eye disease was present in 39.9% of elderly in the present study which was lower as compared to study by Shraddha *et al*.[8] High prevalence of eye disorders was also reported by Goswami *et al* and Ajay K. *et al*.[9,12]Prevalence of endocrine, nutritional & metabolic diseases was 28.2%. Prevalence of diabetes was 14.1% in present study which is similar to study by Shraddha *et al*.[8] A higher prevalence of diabetes was found in studies by Sithara *et al* (33.2%).[13] In present study prevalence of anemia was 12.7% which is low as compared to study by Sharma *et al* where prevalence was 38.7%.[14] The possible reason might be difference in nutritional pattern of elderly. Skin disorders were seen in 19.7% of the study population. Common diseases noted were eczema, dry skin and allergic reaction. This prevalence is higher as compared to other studies.[8, 15] A broad differences were seen among studies, and different method of assessment could be the probable reason. Hearing impairment was noted in about 21.1% in present study. Finding is similar to study done in rural South India which revealed 24.6% of disabling hearing impairment.[16]

As compared to males a significantly higher proportion of female had morbidities related to ear & mastoid process (28% Vs 15%); digestive system (14% Vs 4.4%); respiratory system (22.0% Vs 4.4%); musculoskeletal system (70% Vs 38.9%) and endocrine, nutritional & metabolic diseases (63.3% Vs 19.5%). This may be attributable to neglect of personal health, illiteracy etc.

5. Conclusion and recommendations

There is high morbidity load among the rural elderly with prevalence of morbidity being 65.2%. Increasing age and female gender was the two significant risk factors found to be associated with presence of morbidity in the present study. Greater, targeted efforts are needed to identify at-risk elderly people living in the community and to provide them with elderly-friendly primary geriatric care services (e.g. home care, community based rehabilitation services) that may reduce the burden of unmet need.

References

1. World Health Organization. Active ageing: Towards age-friendly primary health care. Geneva: World Health Organization; 2004.
2. World Health Organization. Older people and Primary Health Care (PHC). Accessed online on 16 September 2013. Available from URL:http://www.who.int/ageing/primary_health_care/en/
3. Situational analysis of the elderly in India; June 2011. Central Statistics Office, Government of India. Accessed online on August 2013.Available from: URL:http://mospi.nic.in/mospi_new/upload/elderly_in_india.pdf
4. Prakash IJ. Ageing in India. Geneva: World Health Organization; 1999.

5. Ageing Scenario in India. Help age India. Accessed online on August 2013. Available from: URL:http://www.helpageindia.org/ageingScenario.php Accessed on 25 Sept 2013

6. Dey AB. Handbook on Health Care of the Elderly: A Manual for Physician in Primary and Secondary Health Care Facilities. National Institute of Health & Family Welfare (NIHFW), New Delhi; 2000.

7. Shankar Reddy Dudala, Arlappa N. An Updated Prasad's Socio Economic Status Classification for 2013. *Int J Res Dev Health* 2013; 1(2):26-7.

8. Shraddha K, Prashantha B, Prakash B. Study on morbidity pattern among elderly in urban population of Mysore, Karnataka, India. *Int J Med Biomed Res* 2012; 1(3):215-23.

9. Ajay K, Khan A M. Health status of retired elderly across different age groups. *Journal of the Indian Academy of Geriatrics* 2007; 3:64-69.

10. Sijan P, Rao A, Shenoy R, Priya H. Utilization of dental services in a field practice Area in Mangalore, Karnataka. *Indian J Community Med* 2010; 35:424-25.

11. Sharma MK, Swami HM, Bhatia V, Verma A, Bhatia SPS, Kaur G. An epidemiological study of correlates of Osteo-arthritis in geriatric population of UT Chandigarh. *Indian J Community Med* 2007; 1:77-78.

12. Goswami A, Reddaiah VP, Kapoor SK, Singh B, Dey A.B, Dwivedi SN and Kumar G. Health problems and health seeking behavior of the rural aged. *Ind J Gerontology* 2005; 19:163-80.

13. Sithara B.V, Girija D.V. Health status of the elderly. *Ind J Gerontology* 2010; 24:194 209.

14. Sharma MK, Swami HM, Gulati R, Bhatia V, Kumar D. Lifestyle and morbidity profile of geriatric population in urban area of Chandigarh. *Journal of the Indian Academy of Geriatrics* 2005; 1:122-25.

15. Bhatia SPS, Swami HM, Thakur JS, Bhatia V. A study of health problems and loneliness among the elderly in Chandigarh. *Indian J Community Med* 2007; 32:239-307.

16. Rani KR. Unreported needs of elderly at home. Kerala Institute for Environment and Development, Thiruvananthapuram. Accessed online on August. Available from: URL:http://www.kied.org/Pub/Un-Reported%20Needs.pdf.