

Study on morbidity pattern among elderly in urban population of Mysore, Karnataka, India

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ABSTRACT

Background: Changes have been seen in the age structure of the population due to a steady rise in life expectancy and reduction in fertility. **Aim:** To know the morbidity pattern of the elderly in urban population of Mysore, delineate the common health conditions affecting the elderly and evaluate the differences in the morbidity pattern between the young old and old old. **Material and Methods:** This community based Cross sectional study was carried out at the field practice area of Urban Health Centre, JSS medical college, Mysore. The study population comprises of all geriatric population aged 60 years and above who were residing in the study area for at least one year. 526 study subjects were used for the study. **Results:** Most of the system disorders were found to be almost equally distributed among elderly men and women. Disorders of oral cavity were more prevalent among aged males (40.6%), while diseases of skin were more prevalent among aged females (10.0%). Most common disorder reported among elderly were diseases of the eye (51.7%) followed by endocrine, nutritional and metabolic diseases (38.4%). **Conclusion:** Awareness among the elderly population should be created for regular medical check-ups to ensure prevention and early detection of the chronic diseases. It is also essential to have geriatric units with specialised professionals along with subsidized health care services in order to address geriatric morbid conditions in a proper manner.

Key words: Morbidity, elderly, system disorders, urban, geriatrics

INTRODUCTION

Elderly refers to ages close to or over the average life span of human beings. This can not be defined with precision because it varies in all communities. However, a person ≥ 60 years is referred to as 'elderly' in India. The elderly population (aged 60 years or above) account for 7.4% of total population in 2001; both the share and size of elderly population is increasing over time from 5.6% in 1961 it is projected to rise to 12.4% of population by the year 2026.^[1]

Changes have been seen in the age structure of the population due to a steady rise in life expectancy and reduction in fertility. The needs and problems of the elderly vary significantly based on their socio-demographic profile. The present study aimed to know the morbidity pattern of the elderly in urban population of Mysore, delineate the common health conditions affecting the elderly and evaluate the differences in the morbidity pattern between the young old and old old.

MATERIAL AND METHODS

This community based Cross sectional study was carried out at the field practice area of Urban Health Centre, located at Medar's block of Mysore city, which comes under the department of community medicine, JSS (Jagadguru Sri Shivarathreeshwara) medical college, Mysore, covers a population of 8000. The study population comprises of all geriatric population aged 60 years and above in the study area, who have resided in the study area for at least one year. The survey was done by house to house visit. After excluding the non-respondents and locked homes after at least 3 visits, 526 respondents were recruited for the study. Approval from the Human Ethical Committee, JSS Medical College, Mysore, was obtained to conduct the study. The study subjects were subjected for personal interview using a pre-tested and semi-structured interview schedule and clinical examinations and checking of individual records were also used as study tools in order to collect data on demographic, socio-economic, environmental and morbidity conditions. Informed consent was taken from the study subjects.

Ethical clearance was taken from the institutional ethical review committee before the start of the study. Data collection was done from May 2011 to December 2011. Contents of interview schedule were as following; socio-demographic details (age, sex, marital status, occupation, education, religion, type of family, duration of stay at the present address, and family composition), 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 oedema), systemic examination (Respiratory System (RS), Cardio Vascular System (CVS), Central Nervous System (CNS), Gastro-Intestinal Tract (GIT), Musculoskeletal, renal, skin, oral and special senses), personal hygiene, functional status, social problems and activities, environmental data, questionnaire on non psychotic psychiatric disorders. Informed consent was taken from the study subjects.

The study subjects were divided into elderly ≤ 75 and > 75 . Later elderly ≤ 75 were sub-divided into categories as shown in table 1. Socio-Economic status of the family was assessed using Modified Kuppaswamy's method of socio-economic scale. 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, t-test is applied at 5% level of significance respectively for qualitative and quantitative data. Statistical analysis is carried out using SPSS Version 17.

RESULTS

Table 1 shows that majority of the elderly (34.6%) belongs to age group 60-64 years followed by age group 75 years and above (25.9%). The majority of study population was belonging to Hindu religion (94.7%). About half of the elderly were illiterate, 39.7% of the aged were widow and 5.7% were widower. Nuclear family was found in 48.9% of the elderly followed by three generation 34.8% and joint family 16.3%. About 48.6% of the elderly were receiving pension (16.9% male and 29.8% female).

The percentage of illiterate elderly was found to be 50.4% and 49.6% of the elderly were literate. Only 2% of the elderly have done study till graduation or post-graduation or professional. 68.8% of the respondents were unemployed followed by 16.2% unskilled worker, 5.9% semiskilled worker, 5.7% semi professional and 3.4% skilled worker. None of the elderly belongs to professional occupation and semi professional was mainly comprised of businessmen. Above table indicates that about a third of the female and 58% of the male population were unemployed. In all category of occupation, proportion of male respondent was higher than female respondent except in the category of skilled worker which was found to be 4.7% among both genders. Socio-economic status revealed that there were mainly three classes from where elderly belongs to; upper middle, upper lower, lower and lower middle. Most of the elderly (64.8%) belongs to class IV. None of the elderly belongs to upper socio-economic group. 27.6% of the aged female and 10.6% of aged male belongs to lower socio-economic class according to Modified Kuppuswami's socio-economic scale (Table 2).

Table 3 depicts that most of the system disorders were found to be almost equally distributed among elderly men and women. Disorders of oral cavity were more prevalent among aged males (40.6%) than females (20.7) while diseases of skin were more prevalent among aged females (10.0%) than males (1.9%). Most common disorder reported among elderly was eye diseases (51.7%) followed by endocrine, nutritional and metabolic diseases (38.4%), diseases of circulatory system (33.1%), disorders of oral cavity (32.3%), musculoskeletal disorders (30.2%) and diseases of respiratory and digestive system was reported about 10% by the geriatric people. Nearly one-third (35.8%) of the aged females had cataract as compared to 20.3% in aged males. Refractive error was also found to be more in female respondents (Table 4).

Out of 526 study subjects, 38.4% elderly were found to have endocrine, nutrition and metabolic disorder. DM was observed in 13.9% of elderly (males 11.6% and female 15.4%). Anaemia was noted in about 21.9% respondents and other diseases were hyperthyroidism, hypothyroidism, hypoadrenalism and hypercholesterolemia (Table 5).

Table 1: Distribution of the Elderly by their Bio-Social Characteristics

Characteristic	Males (N=207) (%)	Females (N=319) (%)	Total (N=526) (%)
Age group (yrs)			
60-64	66 (31.9)	116 (36.4)	182 (34.6)
65-69	41 (19.8)	73 (22.9)	114 (21.7)
70-74	30 (14.5)	64 (20.1)	94 (17.9)
75 and above	70 (33.8)	66 (20.7)	136 (25.9)
Religion			
Hindu	191 (92.3)	307 (96.2)	498 (94.7)
Muslim	8 (3.9)	7 (2.2)	15 (2.9)
Christian	8 (3.9)	5 (1.6)	13 (2.5)
Education			
Illiterate	59 (28.5)	206 (64.6)	265 (50.4)
Literate	148 (71.5)	113 (35.4)	261 (49.6)
Marital status			
Single	0 (0.0)	7 (2.2)	7 (1.3)
Married	177 (85.5)	103 (32.3)	280 (53.2)
Widow	0 (0.0)	209 (65.5)	209 (39.7)
Widower	30 (14.5)	0 (0.0)	30 (5.7)
Type of family			
Nuclear	108 (52.2)	149 (46.7)	257 (48.9)
Joint	30 (14.5)	56 (17.6)	86 (16.3)
3 Generation	69 (33.3)	114 (35.7)	183 (34.8)
Pension status			
Receiving	89 (36.2)	157 (63.8)	246 (46.8)
Not receiving	118 (42.1)	162 (57.9)	280 (53.2)

Table 2: Distribution of Elderly According to their Socio-Economic Position

Characteristics	Males (N=207) (%)	Females (N=319) (%)	Total (N=526) (%)
Literacy Status			
Illiterates	59 (28.5)	206 (64.6)	265 (51.4)
Primary	46 (22.2)	53 (16.6)	99 (19.2)
Middle	34 (16.4)	31 (9.7)	65 (12.6)
High	44 (21.3)	17 (5.3)	61 (11.8)
Intermediate/PUC	21 (10.1)	6 (1.9)	27 (5.2)
Graduate/ PG	3 (1.4)	6 (1.9)	9 (1.7)
Occupational status			
Unemployed	120 (58.0)	242 (75.9)	362 (70.2)
Unskilled worker	41 (19.8)	44 (13.8)	85 (16.5)
Semi skilled worker	21 (10.1)	10 (3.1)	31 (6.0)
Skilled worker	10 (4.7)	8 (4.7)	18 (3.5)
Semi professional	15 (7.2)	15 (4.7)	30 (5.8)
Socio-economic status			
Upper middle(II)	0 (0.0)	3 (0.9)	3 (0.6)
Lower middle (III)	38 (18.4)	38 (11.9)	76 (14.7)
Upper lower (IV)	147 (71.0)	190 (59.6)	337 (65.3)
Lower (V)	22 (10.6)	88 (27.6)	110 (21.3)

Table 3: Distribution of Morbidity patterns of Elderly study subjects

System involved (ICD 10)	Male	Female	Total
Diseases of the eye and adnexa (H00 – H59)	44.9%	49.5%	48.6%
Endocrine, nutritional & metabolic diseases (E00 – E90)	39.1%	37.9%	38.4%
Diseases of circulatory system (I00 – I99)	34.3%	32.3%	33.1%
Diseases of oral cavity& salivary glands (K00 – K14)	40.6%	27.0%	32.3%
Diseases of musculoskeletal system (M00 – M99)	30.4%	29.8%	30.2%
Diseases of digestive system (K00 – K93)	10.1%	11.3%	10.8%
Diseases of respiratory system (J00 – J99)	10.1%	10.3%	10.2%
Diseases of skin & subcutaneous tissue (L00 – L99)	1.9%	10.0%	6.8%
Diseases of the ear and mastoid process (H60 –H95)	5.3%	5.0%	5.1%
Diseases of genitourinary system (N00 – N99)	2.6%	5.3%	4.3%
Diseases of nervous system (G00 – G99)	4.3%	2.2%	3%

Table 4: Distribution of elderly as per diseases of eye

Eye diseases	Males (n=207)		Females (n=319)		Total (n=516)	
	No.	%	No.	%	No.	%
Cataract	42	20.3	114	35.8	156	30.2
Refractive error	38	18.4	37	11.6	75	14.5
Others (Conjunctivitis, Pterygium etc)	13	6.3	7	2.2	20	3.9

Table 5: Distribution of elderly based on endocrine, nutritional & metabolic diseases

Endocrine, nutritional & metabolic disease	Males (n=207)		Females (n=319)		Total (n=516)	
	No.	%	No.	%	No.	%
Diabetes Mellitus	24	11.6	49	15.4	73	13.9
Anaemia	54	26.1	61	19.1	115	21.9
Others	3	1.4	11	3.4	14	2.7

Table 6: Distribution of Elderly According to Diseases of Circulatory System

Diseases of Circulatory system	Males (n=207)		Females (n=319)		Total (n=516)
	No.	%	No.	%	%
Hypertension	63	30.4	91	28.5	29.3
CAD/MI/Arrhythmias	8	3.9	12	3.8	3.8

Table 7: Distribution of Elderly according to Diseases of Musculoskeletal System

Musculoskeletal disease	Males (n=207)		Females (n=319)		Total (n=516)	
	No.	%	No.	%	No.	%
Osteo-arthritis	27	13.0	54	16.9	81	15.7
Backache	12	5.8	12	3.8	24	4.6
Myalgia	8	3.9	10	3.1	18	3.5
Others*	16	7.7	19	6.0	35	6.8

*Others include rheumatoid arthritis, osteoporosis, septic arthritis, kyphosis and joint pain.

Table 8: Distribution of Elderly according to Diseases of Oral Cavity

Diseases of the oral cavity	Males (n=207)		Females (n=319)		Total (n=516)
	No.	%	No.	%	%
Broken teeth	4	2.0	9	2.8	13 (2.5)
Stained teeth	21	10.6	34	10.6	55 (10.7)
Caries	47	23.7	25	7.8	72 (14.0)
Others	11	5.3	17	5.3	28 (5.4)

Table 9: Distribution of Geriatric Population Based on Diseases of GIT

Diseases of GIT	Males (n=207)		Females (n=319)		Total (n=516)
	No.	%	No.	%	%
Gastritis	5	2.4	10	3.1	15 (2.9%)
Constipation	8	3.9	15	4.7	23 (4.4%)
Others	8	3.9	11	3.4	19 (3.6%)

*Others include anorexia, stomach stone, indigestion and abdominal pain.

Table 10: Distribution of Diseases of Respiratory System among Elderly

Diseases of respiratory system among aged	Males (n=207)		Females (n=319)		Total (n=516)
	No.	%	No.	%	No. (%)
Bronchial asthma	5	2.4	7	2.2	12 (2.3%)
URTI	10	4.8	8	2.5	18 (3.4%)
Acute bronchitis	0	0.0	14	4.4	14 (2.7%)
Others	6	2.9	4	1.3	10 (1.9)

*Other diseases include COPD, cor pulmonale, allergic cough & cold

Table 11: The Difference in the Morbidity Pattern between Young Old and Old Old

Prevalence of Diseases	Young Old (n=390)	Old Old (n=136)	P value
Eye diseases	174 (44.6%)	77 (56.6%)	0.015
Endocrine, nutrition and metabolic disorders	134 (34.3%)	68 (50%)	0.001
Diseases of circulatory system	113 (29.0%)	61 (44.9%)	<0.001
Diseases of GIT	34 (8.7%)	23 (16.9%)	0.008
Hearing Impairment	8 (2.1%)	19 (14.0%)	<0.001
Diseases of CNS	8 (2.1%)	8 (5.9%)	0.025

Prevalence of hypertension was found to be 29.3% (males 30.4% and female 28.5%). Other disorders of circulatory system were found to be 3.8% which included coronary artery disease, myocardial infarction and cardiac arrhythmias (Table 6).

The prevalence of osteoarthritis was higher among women (16.9%) than men (13%). Myalgia and lower backache was found to be more among elderly men than women. (Table 7). 23.7% of the male respondents had dental caries against 7.8% of the female respondents. 10.6% of the male and 6.9% of the female respondents had reported stained teeth, this may be because of habit of tobacco chewing among study subjects (Table 8). The overall prevalence of diseases of digestive system was 10.8% among study population. Constipation was found to be in male 3.9% and female 4.7% (Table 9). Diseases of respiratory among study population was found to be 10.2%. Upper respiratory tract infection was noted in about 3.4% of the elderly (men 4.8% and women 2.5%), followed by acute bronchitis (2.7%) and bronchial asthma (2.3%). None of the males had acute bronchitis (Table 10).

The overall prevalence of skin diseases observed was 6.8%. Distribution of Skin diseases observed were as follows eczema 1.9% (men 0.5% & women 2.8%), scabies (men 1.7% ,women 2.8%), psoriasis 1.7% (women 2.8%), and allergic reaction 1.5% (men 1.4% and women 1.6%). Scabies and psoriasis were not seen in elderly men. 5.1% of the elderly were found to have hearing impairment which was almost equal in both gender (men 5.3% and women 5.0%). Genitourinary system disorders was noted in about 9 (1.7%). Diseases found were renal calculi (1.4%), incontinence (0.9%), frequency (0.9%) and Urinary Tract Infection (UTI) (0.9%). Renal caculi and incontinence was almost equally distributed in both gender while frequency and UTI was reported by only female respondents. Prevalence of nervous system disorders was observed in about 3% of the study population which was more prevalent in male respondents (4.3%) than in female respondents (2.2%). The nervous system disorder reported were stroke, cognitive decline, epilepsy and TIA (transient ischaemic attack). (Results not shown)

Table 11 clearly depicting the significant differences in the prevalence between those ≥ 75 and > 75 . i.e. prevalence of eye diseases, Endocrine, nutrition

and metabolic disorders, Diseases of circulatory system, Diseases of GIT, Hearing Impairment and Diseases of CNS were more among old old compared to young old.

DISCUSSION

Diseases of the eyes were most prevalent (51.7%) among all morbidity conditions and cataract (19.6%) was reported most common among eye disorders. In the age group more than 75 years, in illiterates and in unemployed eye diseases were found to be significantly high. High prevalence of eye disorders was also reported by Goswami *et al.*,^[5] and Ajay K. *et.al* ^[2]. Prevalence of endocrine, nutritional & metabolic diseases was 38.4%. Diabetes was seen in 13.9% of the aged which was observed more among women and prevalence of anaemia was found to be 21.9% in present study. 33.25% and 30% prevalence of diabetes mellitus was reported by Sithara *et al.*^[14] and Joshi *et al.* ^[6] respectively. Sharma *et al.* ^[12] noted high prevalence of anaemia (38.7%) which differs from present study. The possible reason might be difference in nutritional pattern of elderly.

Diseases of circulatory system were reported by 33.1% of the elderly. Among CVS disorders, prevalence of hypertension was observed among 29.3% which was seen more among elderly females than males. Circulatory diseases were found to be more significant in persons of higher age group and persons having high blood pressure in present study. Similar findings were noted by Batra *et al.* ^[3] In studies done in Singh *et al.* ^[15], circulatory system disorders were found to be 51.2% and 67% respectively.

The overall prevalence of musculoskeletal diseases observed was 30.2%. Among musculoskeletal diseases osteo-arthritis (15.4%) was found to be higher for females(16.9%) than males (13%). Various studies reported 41.3%, 45.7%, 14.6% and 56.6% prevalence of osteo-arthritis.^{[10],[12],[13],[16]} Prevalence of osteo-arthritis had variation in different studies. Diseases of oral cavity were noted in about 32.3% of the elderly. Dental caries was reported by 23.7% of the male respondents against 7.8% of the female respondents. Sijan Poudyal *et al.* ^[17] reported 42.2% toothache, 29.9% tooth decay, 10.3% mobile tooth, 8.2% bleeding gums, 3% mouth ulcer in their study. Findings of mentioned study were different from present study.

10.8% prevalence of diseases of digestive system was observed in present study. Constipation was the major problem seen among study population. Other problems seen were gastritis, anorexia, indigestion and abdominal pain. Similar complaints were seen in the study done by Mehta P. *et al.*^[9] Respiratory diseases were noted among 10.2% of the aged. Findings were found to be similar to the study done in Sharma *et al.*^[12] 2.3% prevalence of bronchial asthma was noted in present study. Previous study reported 3.7% prevalence of asthma.^[7]

Skin disorders were seen in 6.8% of the study population. Common diseases noted were eczema, scabies, psoriasis and allergic reaction. Skin diseases were found to be about 4% in previous studies.^[4,11] Hearing impairment was noted in about 5% in present study which was equally distributed among elderly men and women. Study done in rural South India revealed 24.6% of disabling hearing impairment. A broad difference was seen among studies, different method of assessment could be the probable reason. Diseases of genitourinary system were reported in 4.3% and UTI was reported by only female respondents. Diseases of nervous system were found to be only 3% in present study. With increasing age diseases of nervous system was found to be increased. Nervous system disorders (stroke) were observed more among elderly males than elderly females. Joshi reported similar results.^[6]

CONCLUSION

Awareness among the elderly population should be created for regular medical check-ups to ensure prevention and early detection of the chronic diseases. It is also essential to have geriatric units with specialised professionals along with subsidized health care services in order to address geriatric morbid conditions in a proper manner. Health education and promotion should be instituted for the elderly. Indigenous and allopathic doctors should be trained to manage geriatric cases. Insurance scheme that would enable the elderly meet their medical expenses should be implemented. Health problems of elderly should be tackled with psycho-social intervention. Healthy traditions and values of Indian culture should be protected and promoted by developing good intra-familial and social relationships.

REFERENCES

1. Situational analysis of the elderly in India; June 2011. Central Statistics Office, Government of India.
2. 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.
3. Sushma B. Health problems of elderly-An Intervention strategy. *IJG*. 2004;18:201-218.
4. Bhatia S.P.S, Swami H.M, Thakur J.S, Bhatia V. A study of health problems and loneliness among the elderly in Chandigarh. *Indian Journal of Community Medicine* 2007; 32:239-307.
5. Anil G, Reddaiah V.P, Kapoor S.K, Singh B, Dey A.B, Dwivedi S.N and Kumar G. Health problems and health seeking behaviour of the rural aged. *IJG* 2005;19:163-180.
6. Joshi SV, Sharma DM, Dhar HL. Study of neurological disorders with emphasis on stroke and risk factor in hospitalized elderly. *IJG* 2008;22:154-162.
7. Kumar D, Mittal PC, Sharma MK, Jaiswal R, Yadav P. Determinants of psycho-social health conditions of elderly in urban area of Allahabad. *Journal of the Indian Academy of Geriatrics* 2007;3:57-63.
8. Lena A, Ashok K, Padma M, Kamath V, Kamath A. Health and Social problem of elderly : A cross-sectional study in Udupi Taluk, Karnataka. *Indian Journal of Community Medicine* 2009;34:31-4.
9. Mehta P, Chauhan K.B, Devi C. Study on food preferences and taste sensitivity of local elderly women residing in Baroda city and evaluation of selected food items for geriatric group. *IJG* 2007;21:20-29.
10. Prakash R, Choudhary S.K, Singh U.S. A study of morbidity pattern among geriatric population in an urban area of Udaipur, Rajasthan. *IJCM* 2004; 29:35-40.
11. Ramadurg Y.U. A study of health status of geriatric population in rural area of Nagamangala taluk, Mandya district, Karnataka State. [MD thesis]. Rajiv Gandhi University of Health Science, Bengaluru. April 2009.
12. Sharma M.K, Swami H.M, 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;1:122-125.
13. Sharma M.K, Swami H.M, Bhatia V, Verma A, Bhatia S.P.S, Kaur G. An epidemiological study of correlates of Osteo-arthritis in geriatric population of UT Chandigarh. *IJCM* 2007;1:77-78.
14. Sithara B.V, Girija D.V. Health status of the elderly. *IJG* 2010;24:194-209.
15. Singh V.B, Nayak K.C, Kala A, Tundwal V. Prevalence of hypertension in geriatric population: A community based study in North-west Rajasthan. *IJG* 2005;19:135-146.
16. Singh L Jaichan, Singh N Biplab. Cancer in

elderly: An overview of the situation in Manipur. Indian J Prev Soc Med 2006;37:82-88.

Karnataka. Indian Journal of Community Medicine 2010;35:424-25.

17. Sijan P, Rao A, Shenoy R, Priya H. Utilization of dental services in a field practice Area in Mangalore,

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