



## Original Research Article

## A study of morbidity profile in south Indian geriatric population in a rural community at Thiruverkadu Thiruvallur district

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## ABSTRACT

**Background:** India is an aging nation. Though increase in aging population represents the success of socioeconomic development and good public health practice, it has also lead to economic and social crisis due to increased demand for health and welfare services.

**Aims and Objectives:** To determine the prevalence of morbidity pattern and to assess the association between socio-demographic factors and the morbidities among geriatric population.

**Materials and Methods:** A cross sectional observational study was conducted for a period of 6 months .500 willing geriatric subjects were subjected to history, brief clinical examination and questionnaire. Details collected were tabulated and analysed using appropriate statistical tools.

**Results:** In our study, 309 people (61.8%) were between 60-69 years of age, 153 (30.6%) were between 70-79 years, 38 people(7.6%) were above 80 years of age. Among 500 people, 273(54.6%) were males and 227(45.4%) were females. In our study group, 81.2% had Dental problems, 57% had hypertension, 54.2% were diabetic, 53.8% had cataract, 45.6% had hearing impairment, 39.4% had CAD, 39% had osteoarthritis, 35.2% were depressed, 30.8% were anaemic, 27.8% had dementia, 24% had COPD, 11.2% had thyroid disorder, 8% had cancer, 7.8% had CVA, 7.2% had Parkinson disease, 5.6% had epilepsy, 5.2% had CKD, 2.2% suffered from CLD, 1.4% had bronchial asthma, 1.2% had TB.

**Conclusion:** This knowledge on prevalence of different co morbidities in the community and their association with various socio demographic factors is required to improve the delivery of health care to the elderly and make aging more graceful.

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### 1. Introduction

Aging is an universal process. Sir James Sterling Ross commented "you do not heal old age, you protect it, you promote it and you extend it".<sup>1</sup> Elderly people are a precious asset to our society. They contribute their might for sustenance and progress of the nation with their rich experiences and wisdom. The special health and economic issues of the elderly have to be addressed as they are different from that of the younger population.

In India, the increasing number of older people has been well perceived. Though increase in ageing population represents the success of socioeconomic development and good public health practice, it has also lead to economic and social crisis due to increased demand for health and welfare services.<sup>2</sup> The Sample Registration System (SRS) in 2003 estimated that 7.2% of total Indian population were above 60 years of age.<sup>3</sup> The absolute size of the aged population is considerable. India thus can be labelled as an ageing nation. Due to growing urbanisation and demand for jobs, children opt out of the extended family setup, establish their own nuclear family leaving their parents in an "Empty Nest". Hence the elderly people suffer from

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psychosocial issues in addition to health issues. Common medical problems include cardiovascular, musculoskeletal, gastrointestinal diseases, respiratory illness, genitor-urinary tract diseases, hearing and visual impairment, cancer, etc., and common psychosocial problems are impaired memory and intelligence, anxiety, depression, rigidity of outlook, dependency and dissatisfaction with family members. Elderly with chronic diseases appear to be at a high risk of acute illness and injuries.

A thorough examination of the morbidity profile among the elderly and an evaluation of the related factors are required to improve the delivery of health care to the elderly. It is also essential to have separate wards or departments to deal with aged persons

In light of the above facts, the present study was conducted at Thiruverkadu, a rural area in Thiruvallur District to determine the prevalence of morbidity pattern among geriatric population and to assess the association between socio-demographic factors and the morbidities among geriatric population.

## 2. Materials and Methods

A cross sectional study was conducted from April 2016 to September 2016 for a duration of six months at Thiruverkadu, Thiruvallur district. It included 500 community dwelling people, aged above 60 years, who were willing to take part in the study and could understand and respond to questionnaires. Each individual in the study was subjected to a personal interview and a rapid clinical assessment and the findings were recorded on a structured proforma. Pre designed and tested Questionnaire which included age, sex, type of family, income, history of chronic disease including psychological disorders was used to collect data. All the above informations were collected with the help of health assistants, faculty members and anganwadi workers.

A person was regarded as hypertensive according to the JNC-VII BP classification or if he was already taking anti-hypertensive medications. Subjects were recorded as diabetic if they were on treatment of Type 2 DM under the program of NCD (Non-Communicable Disease). Visual examination was conducted using torch light and by asking the patients to count fingers. Tuning Fork tests were used to detect Hearing loss. Oral cavity was visualized to rule out dental caries and loss of teeth. TB was recorded as per the RNTCP records. Epilepsy was also recorded as per the patients history and treatment details. Anaemia and Parkinson's disease were judged clinically and also by their medical records. Dementia was assessed using Mini-mental state examination (MMSE) and by medical records. Depression was diagnosed by GDS (Geriatric Depression Scale) and by medical records. Osteoarthritis was recorded by clinical examination and their treatment details. Treatment records were used to group patients with

Chronic Obstructive Pulmonary Disease (COPD), bronchial asthma, Cerebro Vascular Accident (CVA), Coronary Artery Disease (CAD), Thyroid disorder and cancers.

Data collected was entered and analysed using SPSS (Statistical package for Software Solutions) Version. The statistical association between variables was tested using chi-square test.

## 3. Results

In the study, 309 people (61.8%) were between 60-69 years of age, 153 (30.6%) were between 70-79 years and 38 people (7.6%) were above 80 years of age. Among 500 people, 273 (54.6%) were male and 227 (45.4%) were females. While 376 people (75.2%) were agricultural workers, 100 (20%) were labourers, 4 people (0.8%) were businessmen, 3 people (0.6%) were doing white collar job and 17 (3.4%) were doing no specific work. 300 people (60%) were uneducated, 85 people (17%) studied till primary grade, 80 people (16%) studied till secondary grade, 35 people (7%) studied above higher secondary grade. As per Kuppusamy's scale (2012), 62% of subjects belonged to lower class, 34.2% belonged to middle class, and Upper class study subjects were 3.8%. In our study population, 53.5% were in a Nuclear family, while 43.2% were in a joint family, and 3% were living alone.

In our study group, 81.2% had Dental problems, 57% had hypertension, 54.2% were diabetic, 53.8% were affected with cataract, 45.6% had hearing impairment, 39.4% had Coronary Artery Disease (CAD), 39% suffered from osteoarthritis, 35.2% were depressed, 30.8% were anaemic, 27.8% had dementia, 24% had Chronic Obstructive Pulmonary Disease (COPD), 11.2% had thyroid disorder, 8% had cancer, 7.8% had Cerebro Vascular Accident (CVA), 7.2% were disabled due to Parkinson disease, 5.6% were affected with epilepsy, 5.2% had Chronic Kidney Disease (CKD), 2.2% suffered from Chronic Liver Disease (CLD), 1.4% had bronchial asthma, 1.2% had TB.

Diabetes, Hypertension, Osteoarthritis, CAD, COPD, Epilepsy, Thyroid disorder, Anaemia, Cataract, Dental disorder, CLD were common in 60 to 69 years age group. 70 to 79 years age group had CVA, Cancer, Dementia, Parkinsons disease, CKD, TB predominantly. Bronchial asthma was more prevalent in people above 80 years of age. Depression and Hearing loss was prevalent equally in all age groups.

The prevalence of Diabetes, Hypertension, CAD, Cataract, Depression, Dental disorders were equal in both sexes. Females were prone for Osteoarthritis, Bronchial asthma, Thyroid disease, Anaemia while males were more prone for other co morbidities. Age and sex distribution of co morbidities is given in Table 1.

The association of diseases like diabetes, hypertension, anaemia, dementia, CLD with literacy of the population was statistically significant. Similarly the association

**Table 1:** ge and Sex Distribution of Comorbidities

Morbidity	60-69 years		70-79 years		80 years and above	
	Male	Female	Male	Female	Male	Female
Diabetes	79(46.2%)	92(53.8%)	55(62.5%)	33(37.5%)	10(83.3%)	2(16.6%)
Hypertension	77(46.39%)	89(53.6%)	61(60.4%)	40(39.6%)	14(77.8%)	4(22.2%)
Osteoarthritis	23(21.5%)	84(78.5%)	32(58%)	28(42%)	17(60.7%)	11(39.3%)
CAD	51(43.9%)	65(56.03%)	42(60%)	26(40%)	9(69.2%)	4(30.7%)
CVA	11(68.7%)	5(31.25%)	12(67.5%)	6(32.5%)	4(80%)	1(30.7%)
Bronchial asthma	0	2(100%)	2(50%)	2(50%)	0	1(20%)
COPD	66(80.5%)	16(19.5%)	27(79%)	6(21%)	3(60%)	2(40%)
Epilepsy	9(52.94%)	8(47.06%)	7(87.5%)	1(12.5%)	2(66.7%)	1(33.3%)
Thyroid disease	8(19.05%)	34(80.9%)	2(15.3%)	11(84.6%)	1(100%)	0
Anaemia	26(24.76%)	79(75.2%)	17(50%)	17(50%)	7(46.7%)	8(53.3%)
Cataract	82(42.93%)	109(57%)	41(61.2%)	26(38.8%)	9(81.8%)	2(18.2%)
Cancer	7(53.8%)	6(46.2%)	11(68.8%)	5(31.25%)	7(63.6%)	4(36.4%)
Dementia	23(45.1%)	28(54.9%)	40(67.8%)	19(32.2%)	22(75.9%)	7(24.1%)
Depression	37(46.8%)	42(53.2%)	49(68.1%)	23(31.9%)	18(72%)	7(28%)
Hearing loss	52(56.5%)	40(43.5%)	67(67.7%)	32(32.3%)	26(70.3%)	11(29.7%)
Dental problem	121(50.8%)	117(49.1%)	89(66.9%)	44(33.1%)	23(65.7%)	12(34.3%)
Parkinsons disease	8(61.5%)	5(38.5%)	16(76.2%)	5(23.8%)	2(100%)	0
CKD	5(45.5%)	6(54.5%)	10(71.4%)	4(28.6%)	1(100%)	0
CLD	7(87.5%)	1(12.5%)	2(67.7%)	1(33.3%)	0	0
TB	3(75%)	1(25%)	1(50%)	1(50%)	0	0

of COPD, Anaemia, Cataract, Dementia, Parkinsons disease with socio economic condition of the people was statistically significant. Diseases like Diabetes, Hypertension, Osteoarthritis, CVA, Cataract, Cancer, Dementia, Depression, Hearing loss, Dental problems have statistically significant association with family structure of the population in community. Association of comorbidities with literacy, socio economic status and family structure is given in Table 2 .

#### 4. Discussion

India is a federal country with more than Thousand million people. It is estimated that the number of elderly persons will reach about 137 million by 2021 in our country. Migration of younger generation from rural to urban areas and from one urban centre to another, result in the elderly persons being left out to take care of themselves at the times when family support becomes more necessary.

Our observations on age wise morbidity showed 61.8% in 60-69 years age group and 30.6% in 70-79 years age group, which was consistent with the study of Srivastava et al<sup>4</sup> who observed that in urban Meerut nearly 60% belonged to 60–69 years age group and 33% belonged to 70–79 years age group. Similar observations were made in other studies conducted in Meerut city<sup>5</sup> as 62.4% and 30.3% respectively.

Dental problems were the most prevalent morbidity in our study affecting 81.2% of the study population. This was in accordance with the study from Northern India<sup>6</sup> where dental problems were reported to be the most prevalent

based on provisional diagnoses made after general physical examination of the subjects.

Hypertension was present in 57% (males-53%, females-46%) of the symptomatic elderly persons, which is comparable with the findings of Prakash et al<sup>7</sup> in which 48% of the elderly persons were hypertensive. Similarly, Chadha et al<sup>8</sup> reported a prevalence rate of 52.2% and 58.4% among males and females respectively. In contrast, Garg et al<sup>9</sup> found prevalence of hypertension as 16.5% in people > 55 years in an urban area of U. P.

Respiratory problems were found to be about 26% in the present study, which is comparable (36%) with the findings of Prakash et al.<sup>7</sup>

Musculoskeletal problems were present in 39% elderly people. Mainly female patients were suffering from arthritis and low backache (males-36.5%, females- 63%). This can be explained by the fact that postmenopausal females suffer more from osteoporotic and degenerative changes due to hormone withdrawal. However, Prakash et al<sup>7</sup> reported only 14.6% musculoskeletal problems among elderly in their study.

In our study, the prevalence of psychosocial problems among patients was found to be 35.2% (males-59%, females-40-9%). Patients were suffering from depression, loneliness or feeling of neglect by their children. Prakash et al<sup>7</sup> reported much more psychosocial problems in their study subjects (total-42%, males- 37.8%, females - 49.0%). The prevalence of psychosocial problems among females is comparable in both the studies.

**Table 2:** Association of Comorbidities with Literacy, Socio-economic status and Family structure

Morbidity	Literate	Illiterate	p value	Lower class	Upper/middle class	p value	nuclear family	joint family	p value
Diabetes	122	149	0.013	161	110	0.194	135	126	0.045
Hypertension	125	160	0.043	183	102	0.241	145	126	0.001
Osteoarthritis	76	119	0.708	111	84	0.061	93	97	0.003
CAD	78	119	0.881	126	71	0.467	102	91	0.300
CVA	21	18	0.066	19	20	0.075	11	28	0.002
Bronchial asthma	2	5	0.534	4	3	0.790	1	6	0.148
COPD	43	77	0.285	85	35	0.022	72	48	0.099
Epilepsy	10	18	0.634	15	13	0.344	17	11	0.690
Thyroid disease	21	35	0.685	37	19	0.505	31	25	0.549
Anaemia	45	109	0.001	110	44	0.004	90	59	0.398
Cataract	99	170	0.115	179	90	0.024	165	98	0.001
Cancer	18	22	0.501	21	19	0.197	13	26	0.001
Dementia	66	73	0.034	72	67	0.004	44	89	0.001
Depression	70	105	0.939	101	75	0.117	64	104	0.001
Hearing loss	87	141	0.441	140	88	0.801	99	123	0.001
Dental problem	159	247	0.427	252	154	0.947	204	191	0.004
Parkinsons disease	17	19	0.359	15	21	0.009	16	19	0.169
CKD	14	12	0.139	15	11	0.642	10	16	0.156
CLD	8	3	0.025	6	5	0.607	5	6	0.568
TB	2	4	0.737	4	2	0.813	3	3	0.847

Eye problems (especially cataract) were found to be present in 53.8% elderly population (males-49%, females-50.9%), comparable to that reported by Prakash et al<sup>7</sup> (70%) and Purohit and Sharma<sup>10</sup> (40%).

In our study, 45% of males and 54.6% of females were illiterate. The findings were very similar to Kamble SV's Verma V, Ghosh A, Srinivas PJ<sup>11-13</sup> studies which revealed illiterate population to be higher (59.86%). Health is intimately linked to the level of literacy as literacy enables greater awareness about their health needs, utilization of health-care services and appropriate intake of medications.

The present study has a few limitations that must be addressed in future studies. First, because the sample was drawn from a single geographic area, the results cannot be generalized to the national population. Second, because of the cross-sectional design, this study was unable to determine a cause effect relationship. Third, any unexpressed or undiagnosed diseases were not investigated.

## 5. Conclusion

With the changing pattern of family, migration and other socio-demographic factors, there is a continuous rise in the health problems of elderly in developing countries. In such circumstances, it would be beneficial to equip ourselves and the community with skills to tackle the physical as well as psychosocial problems related with the growing age in a holistic manner so as to fight the triple evils of poverty, loneliness and ill health

Hence there is an urgent need to develop various intervention programs for decreasing age-associated

morbidity. Life style modification at an earlier stage is essential to prevent or delay the onset of chronic diseases and to improve quality of life. Regular screening, health check-ups should be promoted to lessen morbidity. Strengthening of geriatric health care services in accordance with the common existing problems, especially preventive and promotive services in the community are required.

The urgent need is to set up special health services for geriatric population in accordance with the existing problems. Providing screening services as well as curative and rehabilitative services and convalescent homes to provide long term care is also a priority.

## 6. Conflict of Interest

None.

## 7. Source of Funding

None.

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