Research Article

A Cross-Sectional Study on the Morbidity Pattern Among Geriatric Population in an Old Age Home in South Kerala

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ABSTRACT

Background: Ageing is a natural process and constitutes population above 60 years. In India, for the year 2010, the estimates were 8% of total population were above the age of 60 years, and is likely to rise to 19% by 2050. Hence the present study was done with the objective of 1.To study the morbidity pattern among geriatric population in study area 2.To study the associated risk factors with morbidity in study population. **Methods:** It was a descriptive cross-sectional study conducted among 148 elderly participants aged 60 years and above in an old age home in Pathanapuram from 10-08-2023 to 10-09-2023. Severely ill participants and those suffering from psychiatric illness and Alzheimers diseases were excluded from the study. Study was conducted using pre-structured questionnaire and clinical examination and medical records. Study was analysed using appropriate percentage, rates and association was measured using chi- square test (p<0.05). **Results:** The most common morbidity noted was musculoskeletal (73%) diseases of the eye (68.9%), oral cavity and salivary gland (60.1%), digestive system (45.3%), circulatory system (45.3%), endocrine along with nutritional and metabolic system (34.5%) among others. Smoking and alcohol consumption were more among males compared to females and this was found be statistically significant. **Conclusions:** The morbidity pattern of different diseases among geriatric population was higher compared to other studies with high prevalence of associated co-morbidities

INTRODUCTION

The UN defines a country as 'ageing' when the proportion of people over 60 reaches 7 percent. In the more developed regions, population aged 60 years and above is expected to increase by 45% by the middle of the century, rising from 287 million in 2013 to 417 million in 2050 whereas in the less developed regions, population is expected to rise from 54 million in 2013 to 1.6 billion in 2010[1]. By 2001, India had exceeded the ageing proportion (7.47%) which accounted for 77 million and is expected to reach 18% by 2050 with India and China constituting for larger portion of this population. Moreover, India's life expectancy at birth has enhanced to 67 years for both males and females in 2011[1]. This process is considered to be an end product of demographic transition or demographic achievement with a decline of both birth and death rate, a consequent increase in life expectancy at birth and at older ages[1]. With increasing age, occurs numerous physiological changes, and the risk of chronic disease rises. By age 60 years, the major burdens of disability and death arise from age related losses in hearing, seei- -ng and moving, and non-communicable diseases, including heart disease, stroke, chronic respiratory disorders, cancer and dementia[2]. The burden associated with these conditions in older people is generally far higher in low- and middle-income countries than in higher income countries[2]. Moreover, since ageing is also associated with an increased risk of experiencing more than one chronic condition at the same time (known as multimorbidity), it is simplistic to consider the burden from each of these conditions independently. The impact of multimorbidity on an older person's capacity, health-care utilization and their costs of care is often significantly greater than might be expected from the summed effects of each condition[2].

Old age not only brings with it new physical and physiological problems but also a variety of social, economic and healthcare policy challenges. Most of them will be living in developing countries which are often least to prepare to meet the challenges of rapidly ageing societies. There are limited social security systems only available to elderly and most of these social security systems

are for the organized sectors especially living in rural areas. 'Helpage India' says about 90% of older persons are from the unorganized sector, with no social security at the age of 60 years[1]. This lack of social security in addition to abandonment and lonelineless has led to increased admission of elderly in old age homes, respite care homes and other similar institutions. These old age homes despite getting support from government in recent times with policies and programmes like National Policy on older people (NPOP) and National Programme for health care of elderly (NPHCE) [3-4], face problems mainly related to overcrowding and funding. Also, as traditionally family is the primary care and material support; the lack of it leads to many physical, mental and economic problems in addition to normal physiological problems related to old age. Hence there is a need for assessment of morbidity pattern in elderly in institutions and its determinants will help in the application of intervention, both medical and social, to improve the health status and thus quality of life of elderly people and hence the present study was done with the objective to study to study the morbidity pattern among geriatric population in study area and to study the associated risk factors with morbidity in study population

METHODS

Study Subjects: Geriatric population aged above 60 years from an Old age home, Pathanapuram.

Study area: Study was conducted at an Old age home in Pathanapuram, Kollam district, Kerala.

Study period: The study was carried out over a period of 1 month, i.e from 10/8/2023 to 10/9/2023

Inclusion criteria: Geriatric population above 60 years of age who give consent.

Exclusion criteria: Severely ill and Psychiatry patients and inmates with Alzheimer's disease

Study Design: Cross sectional descriptive study

Sample Size: 150 inmates were initially selected for study but 2 were excluded due to incomplete data. Hence 148 study participants were analysed at the end of data collection.

Sampling method: Convenient sampling

Study procedure: The study was conducted in an old age home at Pathanapuram in Kollam district of Kerala after taking required clearance was taken from the institutional ethical committee and authorities. Pre structured questionnaire was used to collect the information. A pilot study was done on 20 study subjects to check the questionnaire.

The total list of inmates was taken initially from the management of the institution and 150 study participants were selected from them by random sampling provided inclusion and exclusion and exclusion criteria was satisfied. Verbal consents were taken from the study participants. . If they were further diagnosed to have any of the exclusion criterion, they were excluded from the study and inmate in the next bed were taken into the study. The proforma included socio demographic data, information regarding family type and composition, pension studies and source of income, reasons for staying in old age home, known history of any acute or chronic diseases including any previous history of surgery or medication. General physical examination was done in broad day light followed by head-to-toe examination and positive findings were noted. This was followed by systemic examination. BP was taken in the right arm, in sitting and standing position to rule out postural hypotension. Bedridden were examined in the lying down position. Height was measured using measuring tape. Bedridden were examined in the lying position. Weight was measured using weighing machine. Ocular, oral and skin was done in well illuminated light and using torch.

RESULTS

Table 1: Distribution of study participants based on Sociodemographic characteristics.

Characteristics	Male No. (%)	Femal No.(%)	Total No.(%)
Age groups (yrs)			
60-65	25 (33.3%)	22 (14.9%)	47 (31.7%)
65-70	32 (42.7%)	27 (37%)	59 (39.9%)
70-75	18 (24%)	23 (31.5%)	41 (27.7%)
75-100		1 (1.4%)	1 (0.1%)
Religion			
Hindu	63 (84%)	59 (80.8%)	122 (82.4%)
Muslim	9 (12%)	9 (12.3%)	18 (12.2%)
Christian	3 (4%)	5 (6.8%)	8 (5.4%)
Diet			
Vegetarian	8 (10.7%)	14 (19.2%)	22 (14.9%)
Mixed	67(89.3%)	59 (80.8%)	126 (85.1%)

Marital status			
Unmarried	22 (29.3%)	12 (16.4%)	34 (23%)
Married	43 (57.4%)	33 (45.2%)	76 (51.5%)
Widow	-	28 (38.4%)	28 (18.9%)
Widower	10 (13.3%)	-	10 (6.76%)
Type of family			
Unknown	-	1 (1.4%)	1 (0.7%)
Nuclear	61 (81.4%)	55 (75.3%)	116 (78.3%)
Joint	10 (13.3%)	11 (15.1%)	21 (14.2%)
3 generation	4 (5.3%)	6 (8.2%)	10 (6.8%)
Education			
Literate	61 (81.3%)	45 (61.6%)	106 (71.6%)
Illiterate	14 (18.7%)	28 (38.4%)	42 (28.4%)
Occupation			
Employed	18 (24%)	8 (11%)	26 (16.2%)
Unemployed	42 (56%)	60 (82.2%)	102 (69%)
Retired	15 (20%)	5 (6.8%)	20 (13.5%)
Pension			
Receiving	13 (17.3%)	11 (15.1%)	24 (16.2%)
Not receiving	62 (82.7%)	62 (84.9%)	124 (83.8%)
Total	**75 (50.7%)**	**73 (49.3%)**	**148 (100%)**

Table No. 1: The study was conducted in an old age home with 148 study participants. There was a good representation of study participants among all age groups with 31.7%, 39.9%, 27.7% and 0.7% of the study participants belonging to the age group of 60-65, 66-75, 76-100 and above 100 years respectively. 50.7% of study participants were male and rest were female. Majority of the participants were Hindus (82.4%), consumed mixed diet (85.1%), literate (76.1%), unemployed (68.9%), previously belonged to nuclear family (78.3%) and not receiving any pension (83.8%). When their marital status was assessed, it was seen that 51.5% of participants were married, 23% were single, 18.9% were widows and 6.76% were widowers.
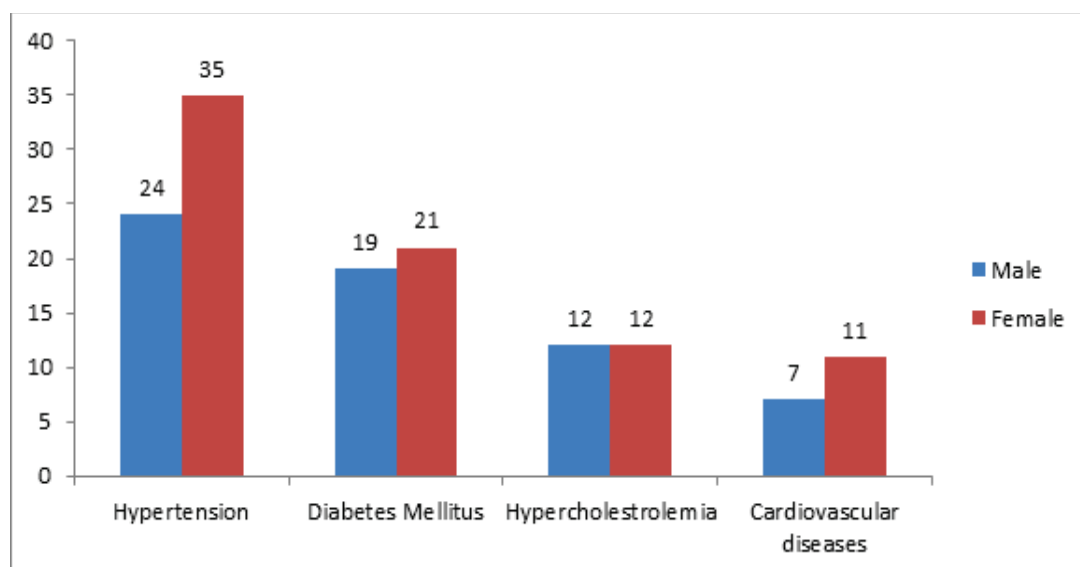

Figure No.1: Distribution of participants based on endocrine and cardiovascular diseases.

Table 2: Distribution of study participants based on reason for stay in old age home

Reason	Male No.(%)	Female No.(%)	Total No.(%)
Financial problems	3 (4%)	5 (6.8%)	8 (5.4%)
No one to take care	60 (80%)	60 (82.2%)	120 (81.1%)
No home	4 (5.3%)	3 (4.1%)	7 (4.7%)
Children abroad	2 (2.7%)	1 (1.4%)	3 (2%)
Others	6 (8%)	4 (5.5%)	10 (6.8%)
Total	**75 (50.7%)**	**73 (49.3%)**	**148 (100%)**

Table No. 2: When reason for staying in old age home was assessed it was noted that majority (81.1%) stayed in study area as there was no one to take care of them and only a small proportion gave other reasons like financial problems (5.4%), homeless (4.7%) and children staying abroad (2%).

Table 3: Distribution of study participants based on anthropometric measurement

Characteristics	Male Mean (S.D.)	Female Mean (S.D.)	Total Mean (S.D.)
Height (cm)	162 (8.6)	148.1 (7.7)	155.2 (8.1)
Weight (kg)	55.5 (10.1)	48.2 (10.1)	51.83 (10.7)
BMI (Kg/m^2)	21.1 (3.5)	21.9 (4.7)	21.6 (4.1)

Table No. 3: Mean BMI and male were 21.1 kg/m^2 (S.D. = 3.5) and females were 21.9 kg/m^2 (SD = 4.7) with an overall mean BMI of 21.6 $\pm$ 4.1 kg/m^2 which was a healthy representation of an individual based on their Body mass index. When further assessed it was noted that 57.1% were normal weight, 24.3% were underweight, 14.4% were pre-obese and 4.1% were obese. It was also noted that 6.8% of females were obese compared to only 1.4% of males.

Table 4: Distribution of participants based on morbidity among elderly

Morbidity	Male Frequency (%)	Female Frequency (%)	Total Frequency (%)
Diseasesof musculoskeletal system	53 (70.7%)	55 (75.3%)	108 (73%)
Endocrine, nutritional and metabolic	25 (33.3%)	26 (35.6%)	51 (34.5%)
Disease of circulatory system	29 (38.7%)	38 (52.1%)	67 (45.3%)
Disease of oral cavity and salivary gland	39 (52%)	50 (68.5%)	89 (60.1%)
Diseases of eye and adnexa	47 (62.7%)	55 (75.3%)	102 (68.9%)
Diseases of digestive system	33 (44%)	34 (46.6%)	67 (45.3%)
Diseases of respiratory system	24 (32%)	17 (23.3%)	41 (21.7%)
Diseases of skin and subcutaneous tissue	22 (29.3%)	17 (23.3%)	39 (26.4%)
Diseases of the ear and mastoid process	18 (24%)	20 (27.4%)	38 (25.7%)
Diseases of the genitourinary system	17 (22.7%)	16 (21.9%)	33 (23.3%)
Diseases of nervous system	21 (28%)	7 (9.6%)	28 (18.9%)

Table No.4: The most common morbidity noted was musculoskeletal (73%) followed by diseases of the eye (68.9%), oral cavity and salivary gland (60.1%), digestive system (45.3%), circulatory system (45.3%), endocrine along with nutritional and metabolic system (34.5%) among others. When further analysed it was noted that 68.5% of females had morbidities related to oral and salivary gland compared to 52% of males. The most common morbidity among participants were of musculoskeletal origin and among it myalgia (57.4%) and arthralgia/low back ache (45.95%) were the leading causes. Among respiratory diseases the most common disease seen was chronic cough (27 participants) followed by Asthma (20 participants). Tuberculosis was diagnosed by self-reporting, and it was noted that there were 2 active cases of Tuberculosis one each among male and female. There were also 17 cases of previous history of Tuberculosis with 10 cases among males and 7 cases among females. Constipation (30.4%) followed by gastritis/abdominal discomfort (28.4%) were the most common gastrointestinal problems. Among genitourinary conditions, 8.1% of study participants complained of pain during micturition and 16.2% complained of urinary incontinence/incomplete urination. Also 4% of the males had Benign Prostatic Hypertrophy and 8.2% of females had Fibroid uterus.

Table 5: Distribution of study participants based on habits

Habits	Male Frequency (%)	Female Frequency (%)	Total Frequency (%)	P value
Smoking	20 (26.7%)	1 (0.01%)	21 (14.2%)	0.00*
Alcohol	10 (13.3%)	0	10 (6.8%)	0.00*
Tobacco products	6 (8%)	7 (9.6%)	13 (8.8%)	0.733
Other habits	11 (14.7%)	7 (9.6%)	18 (12.2%)	0.219

 *Statistically significant at p<0.05

Table No.5: Smoking and alcohol consumption were more among males compared to females and this was found to be statistically significant at p=0.000. When habit of tobacco products consumption was analysed, it was noted that 9.6% of females consumed tobacco products other than smoking compared to only 8% of males but this was not found to be statistically significant.

Table 6: Comparison of pattern of morbidities among elderly in different regions

Morbidity	Present study	Tamil Nadu[5]	Pondicherry[6]	Gujarat[7]	Western UP[8]
Cardiovascular	16.2	16.7	0.3	12.5	11.2
Central nervous system	18.9	11.1	0.3	-	1.1
Respiratory system	27.7	-	3.6	26.3	16.4
Gastrointestinal	22.3	5.6	2.5	18.8	24.2
Musculoskeletal	73	75	12.5	64.9	22.5
Genitourinary	22.3	11.1	0.6	11.0	8.6
Dental	60.1	-	-	34.2	16.4
Ocular	68.9	55.6	-	34.5	24.2
Hearing	25.7	-	-	14.0	10.3
Diabetes Mellitus	27.0	33.3	10.8	18.7	32.3
Hypertension	39.9	63.9	14.2	30.3	52.8
Hypercholesterolemia	16.2	-	-	-	-
BPH	4	-	-	-	3.2
Hernia	-	-	-	-	0.6
Dermatological	26.4	5.6	1.1	-	4.8

Table No. 6: Among metabolic disorders diabetes and hypercholesterolemia cases were diagnosed from self-reporting and cross checking with the files. It was noted that 27% had history of diabetes mellitus and 16.2% of study participants had hypercholesterolemia. 39.9% of study participants had hypertension and 12.2% of the study participants had history of cardiovascular disease in the past.

DISCUSSION

When the present study which was on morbidities among geriatric population in old age home in Pathanapuram was compared with other studies, it was noted that musculoskeletal and eye problem was among the most common morbidity among most of the studies with musculoskeletal disorder was present in 73% of the study participants in the present study compared to 75% in Tamil Nadu[5], 64.9% in Gujarat[6], 22.5% in Western UP[7] and 12.5% in a study done in Puducherry[8]. In the current study among the musculoskeletal morbidities arthralgia was present in 45.5% which was higher than a study done in Kerala[9] (36.2%) and Central India[10] (39.37%) but lower than in Bangladesh[11] (57.5%). Also when eye problem was compared among different studies it was noted that 68.9% of study participants had one or other form of eye problems in the present study compared to 69% in Mangalore[12], 62.9% in Dakshina Kannada[13], 59.6% in Uttarkhand[14], 55.6% in Tamil Nadu[5], 34.5% in Gujarat[6] and 24.2% in Western UP[7]. Genitourinary and dental problem was higher in the present study than the other studies with 60.1% of participants having dental problem in present study which was higher than the study done in Tamil Nadu[15](42%), Maharashtra (41%)[16], Gujarat (34.2%)[6] and Western UP[7] (16.4%) and genitourinary problem was 22.3% in the present study whereas among other studies[5-9] as mentioned above it was less than 10%. **(Table No.6)**

It was also noted that diabetes mellitus was 27% in the present study which was lower than the study done in Tamil Nadu (33.3%), Western Uttar Pradesh (32.2%) but higher than the study done in Gujarat (18.7%) and Puducherry (10.8%) whereas Hypertension was comparatively lower in the present study (39.9%) compared to other studies. Overall, the morbidity pattern of different diseases among geriatric population was higher compared to other studies with high prevalence of associated co-morbidities. This could be due to high level of admission of geriatric population with morbidity in the study area.

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DECLARATIONS

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