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Original Research Article

A study of the morbidity pattern among the elderly population in Vadodara, Gujarat

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ABSTRACT

Background: Aging is an inevitable process. Old age persons are more vulnerable to physical and social problems. The objective was to study the prevalence of health problems among elderly population.
Methods: A cross-sectional study was carried out on 600 old age persons living in villages of Vadodara district. Their socio-demographic profile and morbidity pattern were assessed by face to face interview. Data were analysed by epi info version 7.
Results: Around 65% of study participants have musculoskeletal problems; obesity was prevalent in 46.2% which was more in females (53%) than in males (41%). Depression was more in females 76.2% as compared to males (40%). Prevalence of diabetes and hypertension were 18.7% and 30.33% respectively.
Conclusions: Present study reveals that old age persons from various health problems which show the need for comprehensive health programs especially for elderly population.

Keywords: Morbidity, Elderly population

INTRODUCTION

A man's life is normally divided into five main stages namely infancy, childhood, adolescence adulthood and old age. In each of the stages, an individual has to face different situations and different problems. The old age is also not without the problems. Aging is an integral part of the growth and development which is terminated by death. The elderly people are the precious asset for any country. With their rich experience and wisdom, they contribute their strength for the substance and the progress of the nation.[1] Their special health and economic issues differ from those of the general population. Improvements in health care facilities have brought about longevity, which is considered to be one of the greatest achievements of the 20th century. The ratio of older persons has changed dramatically from approximately one in fourteen in the fifties to about one in four at present.[3] In India, the elderly population is 10 crore forming 10% of total population and it is estimated to reach up to 15 crores by the year 2020 and it is projected to rise to 12.4% of the population by the year 2026.[2] The demographic population is rising due to better health control of communicable diseases resulting in increased longetivity[3]. From the morbidity point of view, almost 50% of the Indian elderly have chronic diseases and 5% suffer from the immobility which poses a greater responsibility on the health services especially in developing countries like India where there is a greater strain on available health infrastructure.[4]

A major component of the burden of illness for the elderly derives from the prevalent chronic diseases. India, in the associated epidemiological transition, is facing a

double burden of communicable and non-communicable diseases. For the substantial impact of this burden, preventive health care strategies specific to the elderly need to be clearly formulated and tested. 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.[5] There is a need to highlight the health problems that are being faced by the elderly people in India and strategies for bringing about an improvement in their quality of life also need to be explored. So the present study was carried out to know the morbidity pattern of geriatric people in rural area.

METHODS

A cross-sectional (observational) study was carried out in the villages of Vadodara district among geriatric population-person having age 60 years or more. Non-cooperative persons were excluded from the study.

Sample Size and sampling

Sample size of 600 was calculated on hypothesis testing methods based on the following assumption: 95% confidence interval, assuming 50% of prevalence for the morbidity for maximum sample size (The literature review revealed that the prevalence of various health problems in elderly varies from 8% to 80%) and 4% margin of error. Six talukas out of twelve of the Vadodara district were selected by simple random sampling. From each of these selected 6 talukas, 4 villages were selected by simple random technique. From each of the selected village, 25 study participants were selected conveniently by the house to house survey. The survey was started on the right-hand side of the village panchayat office. The village next to that in the random list was selected to fulfill the study subjects if study participants were not enough in a selected village.

Data collection

House to house survey was done to find the study subjects from the selected villages. After acquiring the study subject the details regarding the study viz. purpose of the study, method of the study was explained in the vernacular language to each participant and head of the family. Written consent was taken from the each subject with assuring that their name was not be disclosed other than the person concern with the study. The questionnaire was filled by personal interview. Questionnaires were of two parts. The first part included socio-demographic details regarding age, sex, religion, marital status, education, occupation, income, addiction (tobacco and alcohol), drug using for any chronic illness etc. The second part of the questionnaire was about morbidities they suffer at the time of the survey. Blood pressure was measured by random zero mercury sphygmomanometer and stethoscope in sitting position in right brachial artery after 5 minute rest. Korotkoff sound 1 and 5 were considered as systolic and diastolic blood pressure respectively. Pulse pressure was calculated as the difference between systolic and diastolic blood pressure. Mean arterial blood pressure was calculated by using following formula: DBP+1/3 pulse pressure. Measurement of blood pressure of all participants was done by a single investigator. The Folstein Mini-Mental State Exam (MMSE) and its Hindi and Guajarati version of MMSE were used to measure cognition among study participants.[6-8] The MMSE that was used for the study purpose is described below. Geriatric depression scale short form (GDS-15) was used to measure depression.[9] Self-reported morbidities were noted for vision problems, hearing problems, musculoskeletal problems, respiratory problems, cardiovascular problems, gastrointestinal problems, genitourinary problems.

Statistical methods

Data were entered and analyzed on the Epi info 7. Chi-square test was applied for proportions. A $p<0.05$ was considered as statistically significant.

RESULTS

The present cross-sectional study was carried out in villages of Vadodara district during January 2011 to January 2012. A total of 600 participants above the age of 60 years were included in the study.

Table 1: General profile of study participants.

Mean age of participants (in years)	Values
Total	67.04±6.54
Male	67.47±6.88
Female	66.38±5.94
Education	
Illiterate/ Just literate	213 (35.5%)
Primary	215 (35.8%)
Secondary/higher secondary	37 (6.2%)
Graduate/post graduate	135 (22.5%)
Occupation	
Working at present	159 (26.5%)
Not working at present	441 (73.5%)
Marital status	
Married	441 (73.5%)
Unmarried	18 (3.0%)
Separated/divorced	10 (1.7%)
Widow/widower	131 (21.8%)
Living arrangement	
Living alone	65 (10.8%)
Living with spouse	131 (21.8%)
Living with children	94 (15.7%)
Living with both spouse and children	310 (51.7%)
Smoking habit	
Never	462 (77.0%)
Current	100 (16.7%)
Past	38 (6.3%)

Smokeless tobacco use	
Never	496 (82.7%)
Current	85 (14.1%)
Past	19 (3.2%)
Alcohol consumption	
Never	536 (89.3%)
Current	46 (7.7%)
Past	18 (3.0%)

Table 1 shows general profile and addiction among geriatric age group. From the table it has been revealed that 77% participants were never smoked in their lifetime while rests of the participants were smoking currently or in the past. Smokeless forms of tobacco like gutka, mava, pan etc. was prevalent in 14.2%. Alcohol consumption is pretty low in our study.

Prevalence of various other morbidities among study participants according to their history and records is described in Table 2. Prevalence of musculoskeletal problems, vision problems, gastrointestinal problems, depression is significantly higher among female than males ($p<0.05$). Prevalence of respiratory problems, genitourinary problems, polypharmacy is significantly higher among male than in the female ($p<0.05$).

Table 2: Prevalence of other chronic morbidities among study participants (n=600).

Morbidities	Overall prevalence rate (n=600)	Prevalence among male (n=365)	Prevalence among female (n=235)	Odds ratio (CI)	P value
Diabetes	112 (18.7%)	64 (17.5%)	48 (20.4%)	0.83 (0.54- 1.26)	0.375
Musculoskeletal problems	389 (64.9%)	220 (60.3%)	169 (71.9%)	0.59 (0.42-0.84)	0.0035
Dental problems	205 (34.2%)	121 (33.2%)	84 (35.7%)	0.89 (0.63- 1.26)	0.5131
Vision problems	207 (34.5%)	94 (25.8%)	113 (48.1%)	0.37 (0.26-0.53)	<0.001
Hearing problems	84 (14.0%)	47 (12.9%)	37 (32.9%)	0.79 (0.49-1.26)	0.3230
Respiratory problems	158 (26.3%)	120 (32.9%)	38 (16.2%)	2.54 (1.69-3.82)	<0.001
Cardiovascular problems	75 (12.5%)	47 (12.9%)	28 (11.9%)	1.09 (0.66-1.80)	0.7280
Gastrointestinal problems	113 (18.8%)	57 (15.6%)	56 (18.8%)	0.59 (0.39-0.89)	0.0358
Genitourinary problems	66 (11.0%)	48 (13.2%)	18 (7.7%)	1.82 (1.03-3.22)	0.0358
Obesity (BMI ≥23)	277 (46.2%)	152 (41.6%)	125 (53.19%)	0.80 (0.58-1.09)	0.1679
Depression (GDS ≥5)	325 (54.2%)	146 (40.0%)	179 (76.2%)	0.21 (0.14-0.30)	<0.001
Poly-pharmacy	180 (30%)	123 (33.7%)	57 (24.3%)	1.59 (1.09-2.29)	0.0137
Hypertension	182 (30.33%)	115 (31.5%)	67 (28.5%)	1.153 (0.81-1.65)	0.02
Cognitive decline (MMSE <26)	141 (23.5%)	56 (15.3%)	85 (36.2%)	0.32 (0.22- 0.47)	< 0.001

DISCUSSION

In our study out of 600 elderly people, 365(60.8%) were males and 235 (39.2%) were females. Mean age of male and female was 67.47±6.88 and 66.38±5.94 respectively and the difference was statistically not significant. As per Bhatia, et al out of total 361 aged person 152 (43.76%) were males & 209 (57.89%) were females.[10] In villages of Vadodara, 40% of females were literate and only 80.3% of the male were literate. Here we can see gender bias in education level. A similar study of Kishore and Garg found 59% of males and 9.9% of females had a primary and secondary education.[11] In the present study, 73.5% elderly were not indulged in any occupation & 26.5% were working. Another study done in Ahmedabad suggested that 52.3% elderly were not indulged in any occupation and 39% were working but in sedentary way.[12]

The majority of elderly were found living with their spouse and other members. Study of Srivastava and Mishra's supported the same finding.[13] Living with family can improve their quality of life and uncertainties while physical or mental breakdown. Here depression is present in around half of the population suggests some or other differences in the families and lack of understanding in the families even though they are present.

The proportion of current smokers was 16.7%, currently; smokeless tobacco was used by 14.1%. Bala et al in their study of tobacco use in Gujarat state found in the age group of 65 years or older 10.68% were tobacco chewer, 20.36% wire snuffing and 2% were using more than one form of tobacco and 64.73% were smokers.[14] This study again observed that snuffing was more common in

elderly above 65 years age group especially in women, illiterate & in household occupation.

Morbidity profile of our surveyed elderly had the maximum problem of musculoskeletal disorder (64.9%), followed by depression (54.2%) and obesity (46.2%). Another study done in Ahmedabad revealed that Morbidity profile of our surveyed elderly had maximum problem of locomotors (48.6%), followed by vision (42.7%) and hypertension (34.4%) and only 3.7% of elderly had psychosocial problems.[4]

Jacob et al (Tamil Nadu), Gaur et al (North India) and Padda et al (Amritsar) observed in their respective studies that the most common morbidity was joint pain/ joint stiffness (43.4%, 46%, and 60.6%), cataract (68%, 45.3%, and 54.01%) and dental problems (45.3%, and 21.9%) respectively.[15-17] In our study vision, problems and dental problems are somewhat lower than these studies. Decreasing prevalence clearly suggests improvement in health care system even at primary level.

Rahul et al found that 44.2% of male and 54.5% of the female were having hypertension in an urban area. In our study both the prevalences are comparatively low correspondingly 31.5% and 28.5%.[18] As per Swami et al, 53.59% of male and 61.24% of female had hypertension.[19] There is no significant difference between hypertensive male and female in both the studies. As both the studies done in an urban area has a higher prevalence of hypertension than in this study which is done in a rural setting.

Rahul et al found that 44% of elderly were having a musculoskeletal problem as compared to 64.9% in this study.[18] Here in rural are it is possible that people are more engaged in the laborious job than urban area so the musculoskeletal problems are more in a rural area of Vadodara. Female are having more musculoskeletal problems than male in both the studies.

Psychosocial problems were also found among 42% in the urban area of Udaipur Rajasthan whereas 54.2% depression is found in this study. It is possible that in a rural area the person is not having various kind of diversions to engage their minds to leave other psychosocial problems are that's why the amount of depression is more whereas in urban areas there more ways of entertainments to divert the mind.

Gaurav and Kartikeyan found 7.92% of the asthmatics elders whereas in this study 26.3% were having respiratory complaints including asthma.[20] Diabetes was seen in 18.7% of the aged which was observed in the present study. 33.25% and 30% prevalence of diabetes mellitus was reported by Sithara et al and Joshi et al respectively.[21,22]

Diseases of the circulatory system were reported lower than another study done in an urban population of Karnataka. Prevalence of diseases of the digestive system and respiratory diseases were noted higher among villagers of Vadodara than the urban population of Karnataka.[23] The possible reason might be the difference in nutritional pattern, environment conditions, and lifestyle differences.

Rural-urban differences in health and of older particularly in Indian traditional societies are due to the majority of older population lives in rural India (75%). Secondly, elderly from rural areas tend to be the highly marginalized person in terms of socioeconomic conditions due to various patriarchal norms such as patriarchal inheritance and division of labor by gender coupled with the lack of social reforms for older widows in rural India. Third, better quality health care services are more concentrated in urban areas and, still to achieve in rural areas even for the general population. Fourth, due to long period social negligence, older widows are most likely to perceive their ill health condition as god-gifted.[24-26]

CONCLUSION

The study among the elderly in the rural area of Vadodara has highlighted a high prevalence of morbidity and identified common existing medical problems such as like musculoskeletal disorder, depression, vision and dental problems, hypertension and diabetes mellitus. Therefore, the facilities providing geriatric health care services should be strengthened to provide comprehensive services at every level to address the health care needs of the vulnerable elderly population.

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