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Original Research Article

A cross-sectional study on morbidity pattern of elderly population residing in a rural area of Tripura

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ABSTRACT

Background: The elderly is one of the most vulnerable and high-risk groups in terms of health and their health seeking behaviour is crucial in any society. A major component of the burden of illness for the elderly derives from prevalent chronic disease. The objective of study aims to find out morbidity pattern of elderly population aged 60 years and above.
Methods: A community based cross-sectional study was done in rural areas of Madhupur, Sepahijala district, Tripura from August 2015-January 2016. A total of 260 (elderly aged 60 years and above) study participants were selected by simple random sampling.
Results: Majority (52.7%) were between 60-70 years of age, least (1.5%) was in 90-100 years age group. Most of the study population (84.6%) were Hindu and female were more than male (51.9 % vs 48.1%). Majority (38.8%) of them were suffering from two (2) morbidities and 8.1% of study population had 4 and more morbidities. Non-specific generalized weakness was the most common (62.7%) morbidity, followed by gastrointestinal problems (56%) found in geriatric population. Musculoskeletal problems (low back pain, joint pain, osteoarthritis) were 45% followed by anaemia (42%) and impaired vision (36%). Increasing age group and non-smoke tobacco habit among the elderly population was associated with number of morbidities (≥ 3 morbidities/ person) per person ($p < 0.05$).
Conclusions: The study showed high prevalence of morbidities among elderly population. Non-specific generalized weakness was one of the most important problems in this age group. We have to find out the underlying cause of this non-specific generalized weakness by further clinical examination and laboratory investigations in future research.

Keywords: Area, Elderly, Morbidity, Pattern, Population, Rural

INTRODUCTION

Ageing is a lifelong and inevitable process that starts from birth, continues throughout life and ends with death. Aging has been defined as progressive, generalized impairment of function leading to lose of adaptive response to stress and growing risk of age related disease, resulting in progressive increase in age specific mortality.[1] Worldwide increase in longevity has shifted the age distribution toward older populations. In India the size of the elderly population, that is, persons above the age of 60 years is growing fast. The absolute number in India increased from 76 millions in 2001 to 100 millions in 2011. In India, as per the census 2011, the number of elderly population comprised 8.2% of the total population.[2] Exposure to behavioural health risks such as smoking, alcohol consumption, poor diet, a sedentary lifestyle or to toxic substances at work also influences health outcomes in elderly population.[3] Variation in older people's health have genetic origin; apart from the influence of their physical and social environment including home, neighborhood, and surrounding

community as well as their personal characteristics such as gender, ethnicity, or socioeconomic status. Rapid socio-demographic changes like urbanization, nuclearization of family, migration and dual career families are making care of the elderly more and more of a personal and social problem in India.[4]

Beyond biological changes, ageing is also associated with other life transitions such as retirement, relocation to more appropriate housing, and the death of friends and partners.[2,3] The growth of the elderly population present a new challenge to health system and social support networks in many less developed countries where populations are becoming old before they become wealthy. To improve the quality of life of elderly, it is essential to reduce the burden of disease. With this background, the study was undertaken to determine the prevalence of common morbidities and association with socio-demographic and behavioural factors, if any among elderly population residing in a rural area of Tripura.

METHODS

This was a cross-sectional study conducted among rural elderly population aged 60 years and above from August 2015 to January 2016, residing in Madhupur, Sepahijala district, Tripura; the rural field practice area under department of Community Medicine, Tripura Medical College and Dr. BRAM Teaching Hospital. The sample size was 236, using formula 4PQ/L2 taking P as 62.9%.[5] Finally, 260 participants were included, taking 10% as nonresponse rate. There were 10 para (moholla) in Madhupur and out of the 10 paras; 50% i.e., five (Purna Senapati para, Khamarhati, Pathariadwar, Nayabari, Lembutali) were selected by simple random sampling using random numbers table. After reaching each para (moholla), one house having elderly population was selected and starting from this house, every nearest house having elderly population was surveyed till desired sample size according to proportion probability sampling from each para was achieved. All the participants were interviewed using pre-tested questionnaire. Socio demographic factors such as age, sex, religion, marital status, education, occupation, type of family, family income was inquired of along with general and systemic examination. Previous medical records were checked, if available. Collected data was entered in SPSS 19 Software meticulously and suitable tables were also made for analysis, $p < 0.05$ taken as significant.

RESULTS

Out of 260 elderly participants residing in rural area of Madhupur, majority (52.7%) were between 60-70 years of age followed by 35% in 70-80 years of age, least (1.5%) was in 90-100 years age group. Majority of the study population (84.6%) were Hindu followed by Muslim (12.3%) and Buddhist (3.1%). Present study showed slight female predominance over male (51.9 % vs 48.1%). Majority of the study population were educated below primary level (27.7%) followed by illiterate (16.9%), high school (6.5%), graduate and above (6.2%). Most of the study population was living with their spouse (75.8%) though a small section of them were widow (3.5%) and widower (3.1%).

Majority (56.9%) were from joint family and 34.6% belonged to lower socio-economic status, only 1.5% was from upper socio-economic status as per modified BG Prasad scale May 2016 (Table 1).[6]

Table 1: Distribution of study population according to socio-demographic characteristics (n=260).

Characteristics	Frequency N (%)
Age group (years)	
60- 70	137 (52.7)
70- 80	91 (35.0)
80- 90	28 (10.8)
90 - 100	4 (1.5)
Sex	
Male	125 (48.1)
Female	135 (51.9)
Religion	
Hindu	220 (84.6)
Muslim	32 (12.3)
Buddhist	8 (3.1)
Education	
Illiterate	44 (16.9)
Below primary	71 (27.7)
Primary	47 (18.1)
Middle	40 (15.4)
Secondary	24 (9.2)
HS	17 (6.5)
Graduate and above	16 (6.2)
Occupation	
Housewife	108 (42.5)
Farmer	28 (10.8)
Labour	14 (5.4)
Business	54 (20.8)
Employed	16 (6.2)
Retired	40 (15.4)
Marital status	
Married	197 (75.8)
Unmarried	9 (3.5)
Widow	46 (17.7)
Widower	8 (3.1)
Type of family	
Nuclear	112 (43.1)
Joint	148 (56.9)
Socio-economic class	
Lower (<942)	90 (34.6)
Upper lower (942-1882)	79 (30.4)
Lower middle (1883-3138)	58 (22.3)
Upper middle (3139-6276)	29 (11.2)
Upper (≥ 6277)	4 (1.5)
Total	260 (100.0)

Regarding family history of some chronic diseases, 46.5% of study population did not know and 29.2% did not have any significant family history. Among those having family history of some chronic diseases, hypertension was the commonest (9.6%) followed by Diabetes Mellitus (4.6%) and least (0.8%) was malignancy. Commonest form of addiction was smoking (31.2 %), while 13.8% use non- smoke tobacco (chewable form such as khaini, gutkha etc.) and 12.7% addicted to alcohol.

Table 2: Distribution of study participants according to morbidity pattern (n=260).

Morbidity condition	Frequency N (%)
Non-specific generalized weakness	162 (62.7)
Visual problems/ impaired vision	94 (36.0)
Ear, nose, throat/hearing loss/senile deafness/ impaired hearing	15 (5.8)
Musculoskeletal problems	117 (45.0)
Anaemia	109 (42.0)
Cardiovascular problems/ IHD	10 (3.8)
Hypertension	32 (12.3)
Dental problems	29 (11.2)
Endocrine/type 2 diabetes	13 (5.0)
Gastrointestinal problems	146 (56.0)
Skin problems	58 (22.3)
Central nervous system/epilepsy	21 (8.0)
Respiratory problems	73 (28.0)
Urinary disturbance	14 (5.4)
Gynaecological problems*	19 (7.3)
Malignancies	1 (0.4)
Insomnia	11 (4.2)
Depression	6 (2.3)

In this study non-specific generalized weakness was the most common (62.7%) morbidity, followed by gastrointestinal problems (56%) found in elderly population. Musculoskeletal problems (low back pain, joint pain, osteoarthritis) were 45% followed by anaemia (42%) and impaired vision (36%). Cardiovascular diseases were seen in 3.8% study population. Respiratory morbidities like ARI, asthma and COPD was seen in 28% of elderly population. Neurological morbidities such as Migraine, Epilepsy, Hemiplegia and Parkinsonism was found in only 8% of total study population (Table 2).

Figure 1 showed that majority of the elderly population were suffering from two (2) morbidities {101 (38.8%)} followed by single morbidity {92 (35.4%)}, triple morbidities {46 (17.7%)} and only 21 (8.1%) of elderly population had four and more (≥4) morbidities. Increasing age group and non-smoke tobacco habit among the elderly population was associated with number of morbidities per person (≥3 morbidities/ person) which was found statistically significant ($p<0.05$) (Table 4).

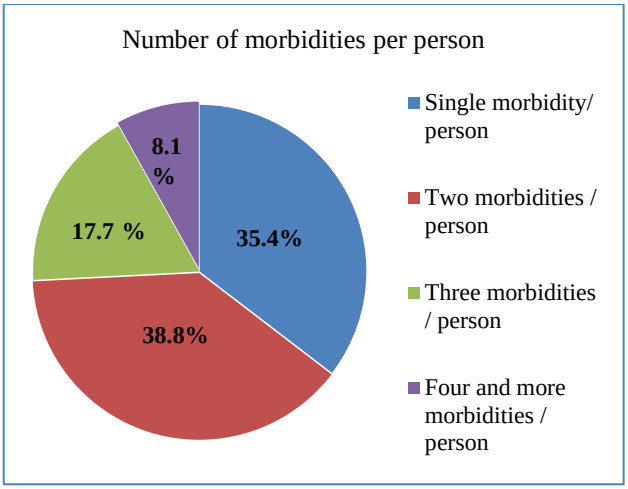

Figure 1: Distribution of study population according to number of morbidities per person (n=260).

DISCUSSION

Out of 260 elderly residents residing in rural area of Madhupur, majority (52.7%) were between 60-70 years of age followed by 35% in 70-80 years of age, least (1.5%) was in 90-100 years age group matched (64% in 60-70 years) with Kamble SV and Verma, Ghosh A, Rafiq M, Kumar R (54.9% in 60-70 years).[7-11] Present study showed that Female were more than male for the total study population (51.9 % vs 48.1%) matched with Kamble SV (53.76% vs 46.24%), Mundada V (52.48% vs 47.52%), Ghosh A (54.53% vs 45.47%), Hameed S (57.9% female), Kumar R (51.2% vs 48.8%), Srinivas PJ (60% vs 40%), whereas male were more than female in JK by Rafiq M (56.1% vs 43.9%), rural Allahabad by Verma V.[5,7,8-13] Majority of the study population (84.6%) were Hindu similar (95.7%) to Verma V, while Ghosh A study had 92.34% Muslims.[8,9]

Majority of the study population (27.7%) had below primary level followed by illiterate (16.9%), very few of them were educated to the level of high school (6.5%), graduate and above (6.2%) whereas majority (43.75%, 59.86%, 75.75% respectively) of participants were illiterate in Verma V, Ghosh A, Srinivas PJ. Kamble SV showed that 36.4% were literate.[7,8,9,13] Hameed S showed 62.9% were illiterate and majority (66.1%) were below poverty line (BPL) card holders.[5] Most of the total study population was living with their spouse, i.e. married (75.8%) though a small section of them were widow (3.5%) and widower (3.1%). Majority (56.9%) were from joint family and majority (34.6%) belonged to lower SES, only 1.5% was from upper SES matched with Ghosh A.[9] 42% were single and 72% had some form of social support as shown by Srinivas PJ.[13] 53% were retired or not working shown by Verma V while 22.5% were employed and 63 % belonged to class V shown by Srinivas PJ.[8,13] Hameed S noted that 38.9% of the population were widow/widowers (36% widows and 2.9% were widowers). Majority (68.3%) were

unemployed and 71.5 % were living in a joint family set up.[5]

In current study, majority of the study population (46.5%) don't know about family history of some chronic diseases, whereas those having family history, hypertension was the commonest (9.6%), 4.6% Diabetes Mellitus and least (0.8%) was malignancy. Srinivas PJ found most common history of previous illness was hypertension (12%) and diabetes mellitus (6%) in both rural and urban areas.[13]

Present study showed that smoking (31.2 %) as the commonest form of addiction, while 13.8% use non-smoke tobacco (chewable form such as khaini, gutkha etc.) and 12.7% addicted to alcohol in present study.

Table 3: Association of socio-demographic and behavioural characteristics of Study Participants with Morbidity (n=260).

Socio-demography and behavioural factors		Number of morbidities per person		Chi-square value, p value
		Number of morbidities per person < 3 N (%)	Number of morbidities per person ≥ 3 N (%)	
Age group (years)	60- 70	111 (81.0)	26 (19.0)	28.57*, p=0.000
	70- 80	71 (78.0)	20 (22.0)	
	80- 90	11 (39.3)	17 (60.7)	
	90 - 100	0 (0)	4 (100.0)	
Sex	Male	91 (72.8)	34 (27.2)	0.258, p=.612
	Female	102 (75.6)	33 (24.4)	
Religion	Hindu	161 (73.2)	59 (26.8)	0953, 0.621
	Muslim	26 (81.2)	6 (18.8)	
	Buddhist	6 (75.0)	2 (25.0)	
Education	Up to primary	120 (73.6)	43 (26.4)	0.085, 0.770
	Above primary	73 (75.3)	24 (24.7)	
Occupation	Working	138 (73.4)	50 (26.6)	0.242, 0.622
	Non-working	55 (76.4)	17 (23.6)	
Marital status	Married	144 (73.1)	53 (26.9)	1.229, 0.746
	Unmarried	8 (88.9)	1 (11.1)	
	Widow	35 (76.1)	11 (23.9)	
	Widower	6 (75.0)	2 (25.0)	
Type of family	Nuclear	88 (78.6)	24 (21.4)	1.938, 0.164
	Joint	105 (70.9)	43 (29.1)	
Socio-economic class	Lower (<942)	71 (28.9)	19 (21.1)	6.907*, 0.141
	Upper lower (942-1882)	56 (70.9)	23 (29.1)	
	Lower middle (1883-3138)	45 (77.6)	13 (22.4)	
	Upper middle (3139-6276)	17 (58.6)	12 (41.4)	
	Upper (≥ 6277)	4 (100.0)	0 (0)	
Family history of chronic disease	Yes	42 (66.7)	21 (33.3)	3.056, 0.217
	No	56 (73.7)	20 (26.3)	
	Don't know	95 (78.5)	26 (21.5)	
Smoking habit	Yes	63 (77.8)	18 (22.2)	0.774, 0.379
	No	130 (72.6)	49 (27.4)	
Non-smoke tobacco use	Yes	22 (61.1)	14 (38.9)	3.760, 0.05
	No	171 (76.3)	53 (23.7)	
Alcohol habit	Yes	25 (75.8)	8 (24.2)	0.046, 0.830
	No	168 (74.0)	59 (26.0)	
Total		193 (74.2)	(25.8)	

*F value taken from Fisher's exact test

Mundada V in Aurangabad 14.24% were smoking tobacco, chewing tobacco 37.76, alcohol 8.64.[12] Hameed S shown that 48.3% (46.8% males, 49.3% females) the study population did not use tobacco in any form.[5] Srinivas PJ shown that 38.5% in rural areas were smokers.[13] Among males 65.5% in rural areas gave history of alcohol intake, no intake of alcohol among females.

Majority (38.8%) of them were suffering from 2 morbidities and least (8.1%) had 4 and more morbidities. Srinivas PJ shown that 40.3% had single morbidity, 25% of the study population has more than one disease. 35.6% have no diseases, 40.3% in rural areas had one disease. 16% in have two diseases and only 9% in rural areas have three and above more diseases.[13] Kumar R shown that 3.7% elderly were not suffering from any form of morbidity, but majority (25.3%) of them were suffering from 3 morbidities followed by 23.5% having 2 morbidities and 12.5% had 5 and more morbidities.[11] Present study showed that increasing age group and use of non-smoke tobacco was significantly ($p<0.05$) associated with number of morbidities per person (≥ 3) which matched the Vadrevu L showed that multimorbidity increased with age and BMI in both the genders and increase in education, employment and sufficient vegetable intake were significant predictors among the rural male population.[14]

Regarding morbidity profile, we observed that generalized weakness was the commonest (62.7%) morbidity followed by overall gastrointestinal problems (56%) found in geriatric population. while only 22.73% were suffering from generalized weakness but almost similar pattern (51.04%) of gastrointestinal problems was shown by Ghosh A.[9] Less gastrointestinal problems (2%, 11.5% and 29.3%respectively) were shown by Kamble SV, Srinivas PJ, Hameed S.[7,13,5]

Persons suffering from anaemia (42%) found in present study was similar (40%) to Srinivas PJ, but higher (8.32%, 32.8% and 33.3% respectively) than Mundada V, Kumar R, Hameed S.[5,11,12,14] Prevalence of anemia (43%) and malnutrition (38.5%) and respiratory problems (16%) were more common in rural area of Allahabad as shown by Verma V.[8]

Present study showed 45% musculoskeletal problems (low back pain, joint pain, Osteoarthritis) almost similar (49.65 %) to Ghosh A but higher (22.5%, 25.5% and 38.8% respectively) than Kumar R, Kamble SV, Srinivas PJ.[7,9,11,13] Hameed S found more (56%) musculoskeletal problems than present study.[5]

Impaired vision (36%) found in present study was almost similar (34% and 38.8% respectively) to Srinivas PJ and Rafiq M but more visual problems (62.9%) was shown by Hameed S.[5,10,13] Lower prevalence (24.2%, 27% and 31.32% respectively) of impaired vision was shown by Kumar R, Srinivas PJ and Ghosh A.[9,11,13] Impaired hearing (5.8%) in current study was almost similar (4.7%) to Rafiq M, but lower (7.2%, 8%, 10.3% and 24.8% respectively) than that of Hameed S, Srinivas PJ, Kumar R and Mundada V.[5,10,11,13]

Hypertension (12.3%) was less (21.6%, 24.1%, and 37.3% respectively) than that of Mundada V, Kamble SV, Rafiq M.[7,10,12] Much higher (52.8% and 56.8% respectively) prevalence was seen in Kumar R and Hameed S.[5,11] Diabetes mellitus (5%) in present study was similar (4% and 5.9% respectively) to findings by Srinivas PJ, Kamble SV.[13,7] Higher (12.7%, 19.7%, and 32.3% respectively) diabetes was shown by Rafiq M, Hameed S and Kumar R.[5,10,11]

Cardiovascular problems were seen in 3.8% study population which was much lower (7.7%, 11.2%, 24% and 41.29% respectively) than previous studies by Hameed S, Kumar R, Srinivas PJ, Ghosh A.[5,9,11,13]

Total respiratory morbidity (ARI, asthma and COPD) was seen in 28% of total study population similar (28.5%) to Hameed S.[5] Higher prevalence (41.08%) of respiratory morbidity was found in Ghosh A while very less (4% and 5.1% respectively) by Srinivas PJ and Kamble SV.[7,9,13]

Total neurological morbidity (Migraine, Epilepsy, Hemiplegia and Parkinsonism) was found in only 8% of total study population slightly higher (3%, 4.5% and 4.7% respectively) than the study findings by Ghosh A, Hameed S and Kamble SV.[5,7,9]

Depression (2.3%) found in current study was more (0.16% vs 1.1%) than Srinivas PJ and Rafiq M whereas higher prevalence (10.72% vs 31.4%) was shown by Mundada V and Kamble SV.[7,10,12,13] Urinary (5.4%) and gynaecological problems (7.3%) found in current study was more (2% vs 2.2%) than Kamble SV and Rafiq M, but lower (8.6% and 12.3% respectively) than Kumar R and Hameed S.[5,7,10,11]

Dental problems (11.2%) found in current study was almost similar (16.4%) to that of Kumar R.[11] Skin problems (22.3%) in present study was much higher (0.16%, 0.69%, 1.2%, 1.6% and 3.52% respectively) that previous findings by Srinivas PJ, Ghosh A, Rafiq M, Kumar R and Mundada V.[9-12] Malignancy (0.4%) found in current study was less (1.15% and 2.4% respectively) than Ghosh A and Rafiq M.[9,10]

Strengths of the study: In rural Tripura, no such study had been reported so far to assess morbidity of elderly population. Further, it was a community based cross sectional study which showed the true picture of different

medico-social problems of elderly population in rural area.

Limitations of the study was to study larger sample size might provide real scenario of morbidity pattern among elderly population and laboratory investigation could not be done as it was a cross-sectional study.

CONCLUSION

The study showed high prevalence of morbidities among elderly population in rural areas of Tripura. Non-specific generalized weakness was one of the most important problems in this age group. We must find out the underlying cause of this non-specific generalized weakness by further clinical examination and laboratory investigations in future research. Further research is needed to explore effect of various socio-demographic, behavioural, nutritional and environmental modifiable risk factors on morbidity pattern in elderly persons.

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