ORIGINAL RESEARCH

Prevalence of non-communicable diseases amongelderly women in Central Indian population

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ABSTRACT

Background: NCDs are one of the major challenges for public health in the 21st century, not only in terms of human suffering but also the harm to the socio-economic development of the country. As the elderly population is likely to increase in the future, and there is a definite shift in the disease pattern i.e., from communicable to non-communicable, it is high time that the health care system gears itself to growing health needs of the elderly in an optimal and comprehensive manner. To provide aid for effective implementation of NCD program by measuring the prevalence of NCD among elderly women with an objective to assess the prevalence of Non-communicable diseases (cardiovascular disease, stroke, cancer, and diabetes) among elderly women has been conducted.

Material and Methods: Community-based cross-sectional study was carried out in the RHTC, center, associated with a tertiary care medical college, India All women (n=260) aged 60 years and above of six Anganwadi areas were interviewed by the house-to- house survey. Statistical analysis was done by SPSS.17.

Results: 33.46% of elderly women belonged to the age group of 60-64 years, 78.85% of the elderly were illiterate. Among all elderly women, 30.38% had hypertension, 7.30% had diabetes, and Ischemic heart disease 1.15% and cancer 0.38% were found in study participants.

Conclusion: Our study shows that diabetes and hypertension are more common among elderly women. The occupation had a significant association with diabetes.

Key words: Non-communicable diseases, elderly women, diabetes, hypertension

INTRODUCTION

Non-communicable diseases are one of the major challenges for public health in the 21st century, they not only cause harm in terms of human suffering but also inflict on the socio-economic development of the country. Each year non-communicable diseases (NCDs) kill about 41 million people (71% of global deaths) worldwide, which includes14 millions of people who die between the age of 30 and 70.[1]

According to World Health Organization (WHO) projections, if timely interventions are not done for the prevention and control of NCDs, the total annual number of deaths from NCDs will increase to 55 million by 2030.[2]

Nearly 5.8 million people (WHO report, 2015) die from NCDs (heart and lung diseases, stroke, cancer, and diabetes) every year in India.[3]

Still, India is poised to become home to the second largest number of older persons in the world. The projection studies indicate that the number of 60 plus in India will increase to 198 million in 2030.[2]

In the future as the elderly population is likely to increase, and there is a definite shift in the disease pattern i.e., from communicable to non-communicable, it is high time that the health care system gears itself to growing health needs of the elderly in an optimal and comprehensive manner. There is a need to emphasize the fact that disease and disability are not part of old age and help must be sought to address the health

problems.[4] Along with income insecurity, illiteracy, age-related morbidity, physical and economic dependency, experience domestic violence, discrimination, and their second-class status, the health of older women is often neglected or ignored. Women are also more likely than men to live to very old age when disabilities and multiple health problems are more common. Elderly women, especially in rural areas, are unaware of their NCD morbidities and their long-term effect as well as they are en- gagged in household chores and do not give attention to their health. [5-6]

Therefore, this study will provide aid in the effective implementation of the NCD program by measuring the prevalence of Non-communicable diseases among elderly women.

OBJECTIVE: The study was conducted to assess the prevalence of non-communicable diseases (cardiovascular disease, stroke, cancer, and diabetes) among elderly women.

Material & Methods

STUDY AREA AND DESIGN: This community-based cross-sectional study was carried out in the field practice area of Rural Health and Training Centre (RHTC), which comes under the Department of Community Medicine of tertiary care Medical College, Central India. All women aged 60 years and above in the study area formed the study population.

SAMPLING METHOD: Rural Health and Training Centre was the selected study area which consists of 6 blocks. Total 7 Anganwadi were registered in the Gram Panchayat, which were approached for the purpose of acquiring the family baseline data so as to get information about the elderly women residing around those Anganwadi.

Anganwadi workers performed house- to-house survey and collected all information of geriatric women. Altogether 298 elderly women were enlisted to be surveyed but only 260 elderly could be taken into study. Women (38) who were temporary or permanent migrated, dead, unavailable for continuous three visits or unwilling to participate and thus were excluded from the study.

INCLUSION CRITERIA: All women were aged over 60 years and above who been residing in the study setting for at least 1 year and willing to give informed written consent were included in the study.

EXCLUSION CRITERIA: A terminally ill or critically ill patient or patient with severe cognitive impairment were excluded.

DATA COLLECTION: Data was collected by the investigator using the interview method through household visits using a pre-structured & pre-tested questionnaire.

Written informed consent was obtained from the respondents for participation in the study. Elderly women of 60 years and above were interviewed to collect information regarding socio-demographic characteristics and their health problems. This was followed by on-the-spot clinical examination and blood investigation in order to find Non communicable diseases among them.

Also, we have considered known cases of NCD who are already diagnosed and on treatment.

STATISTICAL ANALYSIS: Descriptive statistics were used to display the Socio-demographic profile of the participant. Data were entered in Microsoft Office Excel and Statistical analysis was done by using descriptive and inferential statics using chi-square test and software used in the analysis was Statistical Package for Social Science (SPSS) 21.0.

RESULTS

This community-based cross-sectional study was carried out in the rural area of Wardha with 260 elderly women participants.

According to age, out of 260 elderly women, 87 (33.46%) of elderly women belonged to the age group of 60-64 years, followed by 73 (28.08%) in the age group of 65-69, 60 (23.08%) belonged to the age group of 70-74 years, 20 (7.69%) comes in the age group of 75-79 years, and 20 (7.69%) belonged to 80 years and above. The study also shows the distribution of the study population according to religion. 224 (86.15%) belonged to Hindu, followed by 27(10.39%) Buddhist and 9 (3.46%) Muslims.

In our study 68.1% elderly belonged to other back-ward castes (OBC); followed by schedule tribes (14.61%), scheduled caste (11.54%), and other (5.75%).

In this study 57.7% of elderly women were married, whereas 40.77% of elderly women were widow, 1.15% was separated and 0.38% was unmarried. The above study also shows that 41.15% of elderly women were living in three-generation families. 36.93% lived in nuclear families whereas 20% were living alone. Only 1.92% of elderly women were living in joint or extended families.

Table 1shows 78.85% of the elderly were illiterate, 11.2% were having Primary education, 6.5% were middle school and 1.92% elderly were having education up to high school. Only 1.53% elderly were above intermediate. The majority (53.85%) of the elderly were unemployed in this study. Others were indulged in labour or unskilled worker (37.3%), semiskilled (1.54%) and shop owners and farmers were 7.31%. The majority of elderly women belonged to class III (36.15%) and class IV (31.15%) followed by class II (13.47%) and class V (12.31%) and then 6.92% class I according to modified BG Prasad classification.

Among the 260 elderly women 30.38% had hyper-

tension, 7.30% had diabetes, 1.15% had Ischemic Heart Disease, and 0.38% had cancer.

Table 1: Socio-Economic Profile of elderly women (N = 260)

Characteristic		Women (%)
Education-wise profile	Illiterate	205 (78.85)
	Primary Education	29 (11.2)
	Middle School	17 (6.5)
	High School	5 (1.92)
	Intermediate	4 (1.53)
Type of Occupation wise profile	Unemployed	140 (53.85)
	Unskilled worker	97 (37.3)
	Semiskilled worker	4 (1.54)
	Clerical, shop owner, farmer	19 (7.31)
Socio-economic status wise profile	Class I	18 (6.92)
	Class II	35 (13.47)
	Class III	94 (36.15)
	Class IV	81 (31.15)
	Class V	32 (12.31)

Table 2: Intermediate hyperglycemia and diabetes in elderly women (n=181)

Blood glucose status	Elderly women
Normal	127 (70.17%)
Diabetic	19 (10.50%)
Impaired Glucose Tolerance (IGT)	35 (19.33%)

*Apart from this, 79 women were also found normal (≤110 mg/dl) in random blood sugar tests conducted.

Table 3: Relation between Diabetes and Hypertension

Diabetes	Hypertension				Total	χ2/df	p-value
	Normal	Pre hypertension	Stage 1HT	Stage 2HT			
No	115 (47.72)	73 (30.29)	43 (17.84)	10 (4.15)	241 (100)	0.923/1	0.337
Yes	6 (31.58)	7 (36.85)	5 (26.31)	1 (5.26)	19 (100)		
Total	121 (46.54)	80 (30.77)	48 (18.46)	11 (4.23)	260 (100)		

Table 4: Correlation of variables with morbidity among elderly women

Variables		N	Hypertension	Diabetes	Ischemic Heart Disease	Cancer
Total		260	79 (30.38)	19 (7.30)	3 (1.15)	1 (0.38)
Age Group (Years)	60-69	160	41(25.62)	10 (6.25)	2 (1.25)	0
	70-79	80	29(36.25)	7 (8.75)	1 (1.25)	0
	≥80	20	9 (45)	2 (10)	0	1 (5)
P-value			0.081	0.407	1.00	0.38
Type of family	Singular	52	13 (25)	4 (7.69)	0	0
	Nuclear	96	28 (29.16)	2 (2.08)	0	0
	Three Generation	112	38 (33.92)	13 (11.60)	3 (2.67)	1 (0.89)
P-value			0.486	0.020	0.0787	0.4308
Type of occupation	Unemployed	140	53 (37.85)	15 (10.71)	3 (2.14)	1 (0.71)
	Employed	120	26 (21.66)	4 (3.33)	0	0
P-value			0.005	0.0299	0.2516	1.00
Economic Dependence	Dependent	100	37 (37)	9 (9)	2 (2)	1 (1)
	Independent	160	42 (26.25)	10 (6.25)	1 (0.625)	0
P-value			0.067	0.407	0.5607	0.3846

Table 2shows Intermediate hyperglycemia and diabetes in elderly women. Out of 181 elderly women, 70.17% were having normal blood glucose levels. 10.50% of elderly were found to have diabetes (including 14 previously diagnosed and newly diagnosed 5 diabetics), whereas 19.33% of elderly were having impaired glucose tolerance.

Table 3shows the relation between diabetes and hypertension. Among diabetic (19), 26.31% were affected by stage1 hypertension and 5.26% stage 2 hypertension. 36.85% come under the prehypertension stage. No significant association was observed, but along with affected 31.58% hypertensive, 36.85% pre hypertensive also need for lifestyle modification.

This study also shows (Table 4) an increasing pattern of disease with age, in diabetics and cancer cases. No significant association was found in this study between literacy status and NCD morbidity among elderly women although illiterate elderly women had more morbidity than literate. Except for diabetes (9.09%) and IHD (3.63%) were more common in literate elderly women. The above difference might be due to their lifestyle. Non-communicable morbidity was more common in the upper class like hypertension (35.84%), diabetes (16.98%), IHD (5.66%), cancer (1.88%) in the current study.

Hypertension (33.92%), diabetes (11.60%), IHD (2.67%), cancer (0.89%), were more in joint families. Diabetes had a significant association with the elderly belong to the type of family with p-value <0.05.

All the morbidities were more common in unemployed than employed. Even hypertension (37.85%) and diabetes (10.71%) were much higher in unemployed elderly women than employed. It was maybe due to the sedentary lifestyle in unemployed elderly women. Hypertension, Diabetes were showing a significant association with the type of occupation with a p-value <0.05.

No significant association of morbidities with economic dependence, although hypertension and diabetes were slightly higher in Economic Independent.

DISCUSSION

SOCIO-DEMOGRAPHIC AND ECONOMIC PROFILE

In the current study, 33.46% of elderly women belong to the age group of 60-64 years. 7.69% were 80 years and above. The present study showed decreasing proportion of elderly women with an increase in age. This was in accordance with the figures of census 2011[8]which showed 35.92% elderly in the age group of 60-64 years; 25.59% elderly were in the age group of 65-69 years; 18.10% elderly were in the age group of 70-74 years; 8.98% elderly were in the age group of 75-79 years and 11.37% elderly were in the age group of 80 years and above. Similar findings were also shown by Lena *et al*. (2009)[9], Boralingaiah *et al*. (2012)[10], S. K. Gupta *et al*. (2012)[11].

The study shows as per the marital status of elderly women, more than half were married (57.7%), followed by the widow and very minimal were separated or unmarried. This data correlates with data of census 20118, 49.57% of elderly women were married; 47.79% widowed; 0.44% separated, and 0.14% divorced. Similar results were in the study of Boralingaiah *et al*. (2012)[10], Singh R *et al*. (2013)[12].

In the present study, 43.07% of elderly women were living in three-generation or joint families. 36.93% lived in nuclear families whereas 20% were living alone. Similarly, data of NSSO Survey on Condition of Aged (2004) shows 40% of elderly females live with their spouse (nuclear type); about half of aged women live with their children (joint type) and 7-8% lives alone. Similarly, Boralingaiah, *et al*. (2012)[10],Sumanth S. Hiremath (2012)[13]found 46.7%, 43.2% Nuclear family and 53.29%, 56.8% in joint family respectively.

This study shows that 78.85% of elderly women were illiterate and 21.15% literate. The disparity in literacy status may be attributed to the area being rural. Similar findings were found in the study of Boralingaiah *et al*. (2012)[10],S. K. Gupta *et al*. (2012)[11],Srivastava AK *et al*. (2013)[14]illiteracy rate of 80%, 64.6%, 70.1% respectively. The present study shows 53.85% of the elderly were unemployed and 46.15% employed. (Table no-1). Both population census 2001 and NSSO survey on the employment-unemployment survey (2007-08) revealed that nearly 40% of people aged 60 years and above (60% of men and 19% of women) were working. In rural 66% of elderly men and 23% of elderly women still, participate in economic activity[18].In this study among singular family the maximum elderly (59.62%) were unskilled workers or laborers. Whereas 85.05% were unemployed belong to three-generation families. This indicates, in a joint family there was no need for elderly women to work for livelihood.

MAGNITUDE OF MORBIDITY

The current study shows 30.38% of elderly women had hypertension and 32.86% prehypertension. Among these hypertensive's, nearly half (40.50%) were not aware of their hypertensive status. This shows that nearly half of the disease burden of hypertension is undiagnosed and is at risk of its complications. Similar findings were reported in Shrivastava RK, GOI & WHO multi-centric study (2007) in India were among total hypertensive (31.8%), nearly half (15.7% of total study subjects) were aware of their hypertensive status[15].Study in rural Wardha by Deshmukh *et al*. (2005)[16]reported 38.7% of elderly had hypertension. The percentages of elderly suffering from hypertension were nearly consistent with other studies as reported above. In contrast to the present study, some studies have a higher result. Lena *et al*. (2009)[9]reported 60.3% hypertension in elderly females. S.K. Gupta *et al*. (2012)[11]observed 45.3% hypertension in elderly females. The differences in the prevalence of hypertension may be attributed to the different setting areas and the change in the lifestyle of participants. Hyper-tension was more in illiterate (31.21%) than literate (27.27%). Women's education also affects attitudes towards health. The more highly educated are likely to better understand the importance of proper health care. Elderly women among joint family (33.92%) and upper class (35.84%) affected more than singular (25%) and lower class (30.97%). A significant correlation was found with unemployed elderly (37.85%) than employed (21.66%).

Among total participants, 7.30% were diabetes and 13.46% impaired glucose tolerance in elderly women

(Table no-2). A study by GOI & WHO, a multi-centric study in India reported the prevalence of diabetes as 13.3% and 9.8% in urban and rural areas respectively[15].These findings were in near accordance with the current study. The percentages of elderly women who had diabetes were nearly consistent with studies of Lena *et al*. (2009)[9]S.K. Gupta *et al*. (2012)[11]which report 9% and 11% respectively. A community-based (geriatric population in the urban area of Chandigarh) study by Sharma *et al*. (2005)[17]showed a prevalence of diabetes as high as 25.5%. These variations may be attributed to different settings and different methods for diagnosis. The present study revealed that aging increases diabetes prevalence. A joint family (11.60%) elderly woman was more prone to diabetes than nuclear (2.08%) or single (7.69%) elderly women. A participant belonging to classes I and II (16.98%) were more diabetic than class IV and V (6.19%). The above finding indicates that a sedentary lifestyle and dietary pattern may lead to diabetes.

CONCLUSION

The present study depicts a current picture of a society where there is a breakdown of family structure and the framework of family support is diminishing. Elderly females are most vulnerable to a lack of attention from family members due to the lower status of females and no representation in the property. Our study shows that diabetes and hypertension are more common among elderly women. Nearly half (40.50%) were not aware of their hypertensive status. Among total participants, 7.30% were diabetes and 13.46% impaired glucose tolerance in elderly women. The occupation had a significant association with diabetes.

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