Morbidity pattern among the geriatric population in rural area of Haldwani block in Nainital district of Uttarakhand

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Abstract

Background: Health is the single most important determinant of the quality of life among elderly. With advancing age, ill-health becomes a major hindrance for the well-being of the elderly. Thus this study was conducted with the objective to know the morbidity pattern in geriatric population and to identify factors influencing their morbidity status.

Methods: A community based cross-sectional study was carried out in rural field practice area of the Department of Community Medicine. 440 geriatric were selected by two stage sampling technique. A pretested semi-structured questionnaire was administered to obtain the data. Data was analyzed using SPSS v 16. Chi-square was used to test the association and $p<0.05$ was considered as significant.

Results: Among 440, majority of the elderly (59.6%) were in the age group of 60-69 years. Mostly were females (57.5%). 11.4% of the geriatric were not suffering from any form of morbidity. Most common morbidity was ocular (53.6%), followed by CVS (40%) and musculoskeletal (34.8%). Respiratory and Genitourinary system were more involved in elderly males as compared to that of females. Morbidity was found to be significant with increase in age, female sex, marital status and living arrangement.

Conclusion: Majority of the elderly were suffering from one or the other disease. Morbidity pattern shows that age related disorder are more common and need attention from earlier stage so that postponement of the disorder or rather timely prevention can be done.

Keywords: Geriatric, Morbidity, Rural, Socio-demographic factors

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Introduction

The United Nation defines a country as 'ageing' where the proportion of people over 60 reaches 7%.[1] In India, the proportion of the population aged 60 years or more has been increasing consistently over the last century. In 1901 the proportion of the population aged 60 or over of India was about 5 percent.[2] Now, this has gone up to 8.0% in 2011.[3] It was projected to increase to 20 per cent by the year 2050.[4]

The disease burdens and health care needs of aging societies are quite different from those of younger ones[5] and the idea that old age is an age of ailments and physical infirmities is deeply rooted in the Indian mind and many of the sufferings and physical troubles which are curable are accepted as natural and inevitable by the elderly.[6]

Thus this study was conducted with the objective to know the morbidity pattern in geriatric population and to identify factors influencing the morbidity status.

Materials and Methods

A community based cross sectional study was conducted in the catchment area of block level Primary Health Centre (PHC) which is also the rural field practice area of the Department of Community Medicine. The study was carried out for a year from November 2013 to October 2014. Taking a default prevalence (p) of 50% for the morbidity in geriatrics and at 5% of absolute precision, sample size was calculated by the formula ($n = 4\ pq/d^2$) as 400. Assuming 10% non-response rate the final sample size was fixed at 440. Two stage sampling technique was applied, as in 1st stage 11 subcentres (SCs) were selected randomly out of 22 SCs attached to this PHC, 40 elderly were selected from each of these 11 SCs to get the adequate sample size of 440. A list of all the elderly was made for all SCs selected from the sub centre survey register maintaining the order of the families as per the survey done. In the second stage, to choose elderly from the study population, every 10th elderly was taken. This approximate sampling interval was calculated on the basis of desired sample size and total elderly population satisfying the inclusion criteria. If some elderly did not consent for the interview or could not be contacted then the next name was selected from the list. People aged 60 years and above, who were permanent resident of the study place and gave consent and volunteer to participate were included in this study. A pretested semi structured questionnaire was administered and required information was obtained from the elderly subjects using the interview method by

house to house visit. Morbidity was assessed by history taking, clinical examination, reviewing past medical records and treatment taken by the elderly. The data obtained was coded & entered in Microsoft Excel. Analysis was done using SPSS version 16 and descriptive interpretation of data was done in the form of percentages. The Chi square test was used as test of significance. Ethical clearance was obtained before conducting the study from the Institutional Ethics Committee.

Results

Table 1 show that the most of the elderly (59.6%) were in the age group of 60-69 years. Majority of the subjects were females (57.5%). There was no significant difference found between age and sex of the elderly (χ^2=5.1, p=0.078). The mean age of study subject was 68.23±7.69 years.

Most of the elderly (77.2%) suffered from 1-3 morbidities. 32.7% of elderly ≥80 years had 4-6 morbidities, much higher than that of elderly aged 70-79 years (15.5%) and 60-69 years (5.3%). The frequency of morbidity increases with increase in age and this difference was found to be highly significant (χ^2=40.1, p=0.001) as depicted in Table 2.

The morbidities of respiratory and genitourinary system were more prevalent in elderly males than females. The morbidities more prevalent in elderly females as compared to that of males were of cardiovascular system (CVS), nervous system, gastrointestinal tract (GIT), musculoskeletal, endocrine, eye, ear, nose and throat (ENT) and skin. One elderly female was found to be suffering from cancer cervix. Total numbers of morbidity documented among the elderly were 913, so the morbidity load per person was 2.08, as observed in Table 3.

The prevalence of morbidity increases with increase in age and this was statistically significant (χ^2=10.06, p=0.005). The morbidity was seen more in elderly females in comparison to that of males and this difference was significant (χ^2=4.21, p=0.04). It was seen that married people had comparatively less chance of getting ill than those who were widowed. This association was found to be significant (χ^2=9.60, p=0.002). The literacy status has no significant association with morbidity (χ^2=0.094, p=0.759). The employment status of elderly also has no significant association with morbidity (χ^2=2.50, p=0.114). The socioeconomic status was found to have no significant association with morbidity (χ^2=4.93, p=0.295). The morbidity among those who were living with spouse only or with spouse and other family members was less as compared to those who were living either with other relatives, children and grandchildren or alone. This difference was also found as significant (χ^2=11.4, p=0.022). The financial dependency among elderly had no significant association with morbidity (χ^2=2.24, p=0.326), as shown in Table 4.

Table 1: Distribution of study subjects according to age and sex

Age group (years)	Males		Females		Total	
	No.	%	No.	%	No.	%
60-69	100	53.5	162	64.0	262	59.6
70-79	62	33.2	67	26.45	129	29.3
≥ 80	25	13.3	24	9.5	49	11.1
Total	187	100.0	253	100.0	440	100.0

(χ^2=5.1, p=0.078)

Table 2: Frequency of morbidity according to age

Frequency of Morbidity	60-69 years		70 -79 years		≥80 years		Total	
	No.	%	No.	%	No.	%	No.	%
0	39	14.9	11	8.5	00	0.0	50	11.4
1-3	209	79.8	98	76	33	67.3	340	77.2
4-6	14	5.3	20	15.5	16	32.7	50	11.4
Total	262	100.0	129	100.0	49	100.0	440	100.0

(χ^2=40.1, p=0.001)

Table 3: Distribution of morbidity pattern of study subjects according to sex

Morbidity*	Male (n=187)		Female (n=253)		Total (N=440)	
	No.	%	No.	%	No.	%
Cardiovascular System	77	41.2	99	39.1	176	40
Nervous System	10	5.4	11	4.3	21	4.8
Respiratory	37	19.8	22	8.7	59	13.4
Gastrointestinal tract	30	16.0	47	18.6	77	17.5
Genitourinary	10	5.4	03	1.2	13	2.9
Musculoskeletal	38	20.3	115	45.5	153	34.8

Endocrine	24	12.8	37	14.6	61	13.9
Eye	98	52.4	138	54.5	236	53.6
Ear, Nose &Throat	37	19.8	41	16.2	78	17.7
Skin	15	8.0	23	9.1	38	8.6
Cancer (cervix)	00	0.0	01	0.4	01	0.002

*Multiple responses

Table 4: Association between morbidity and socio-demographic characteristics

Socio-demographic characteristics	Morbidity			χ^2 p value
	Present (n=390)(%)	Absent (n=50)(%)	Total (N=440)(%)	
Age group (years)				
60-69	223(85.1)	39(14.9)	262(59.6)	χ^2 = 10.46 p = 0.005
70-79	118(91.5)	11(8.5)	129(29.3)	
≥80	49(100.0)	00 (0.0)	49(11.1)	
Sex				
Male	159(85.0)	28(14.9)	187(42.5)	χ^2 = 4.21 p= 0.04
Female	231(91.3)	22(8.7)	253(57.5)	
Marital status				
Married	223(84.8)	40(15.2)	263(59.8)	χ^2 = 9.60 p = 0.002
Widowed	167(94.4)	10(5.7)	177(40.2)	
Literacy status				
Illiterate	233(88.3)	31(11.7)	264(60.0)	χ^2=0.094 p = 0.759
Literate	157(89.2)	19(10.8)	176(40.0)	
Employment status				
Currently Working	79(84.0)	15(15.9)	94(21.4)	χ^2 =2.50 p=0.114
Not working	311(89.9)	35(10.1)	346(78.7)	
Socio economic status				
Upper	1(100.0)	0(0.0)	1(0.2)	χ^2 = 4.93 p= 0.295
Upper Middle	45(97.8)	1(2.2)	46(10.5)	
Middle	226(86.9)	34(13.1)	260 (59.1)	
Lower Middle	85(89.5)	10(10.5)	95(21.6)	
Lower	33(86.8)	5(13.2)	38(8.6)	
Living arrangement				
Alone	10(100.0)	0(0.0)	10(2.3)	χ^2 = 11.4 p = 0.022
Spouse only	18(78.3)	5(21.7)	23(5.2)	
Spouse, children & grandchildren	203(85.3)	35(14.7)	238(54.1)	
Children & grandchildren	148(94.3)	9(5.7)	157(35.7)	
Others*	11(91.3)	1(8.3)	12(2.7)	
Financial dependency				
Independent	95(84.8)	17(15.2)	112(25.5)	χ^2=2.24 p=0.326
Partially dependent	109(89.3)	13(10.7)	122(27.7)	
Fully dependent	186(90.3)	20(9.7)	206(46.8)	

*****Others – elderly that were living either with their married daughter's or brother's family

Discussion

The trend of decreasing percentage of elderly with increase in age was observed in this study. Similar findings were seen in studies done by various other researchers.[7-10] The proportions of elderly females' outnumbered males in our study. Similar observations were made by others in their research[11-17] while in some studies[18-20] numbers of males were more than that of females. The prevalence of morbidity among elderly was found to be 88.64%. It was comparable to that reported by Agrawal S et al[17] and Shankar R et al[20] as 88.8% and 88.5% respectively in their studies. The morbidity reported in various other studies were as low as 65.2% by Kumar R et al[19] to highest of 96.3% by Hameed S et al.[11]In present study, 77.2% of the elderly had 1-3 morbidity while 11.4% had 4-6 morbidity. Sharma D et al[13] reported that 15.3% elderly had a single morbidity, 25.5% had two morbidities, 19.7% had three morbidities, and 23.5% had four to six morbidities. Ashok KT et al[15] observed in his study that about half of the subjects

(50.4%) were diagnosed as having 1-3 morbidities and 34.8% of elderly having 4-6 morbidities while few (8.9%) elderly people having more than 6 morbidities. The morbidity load per person in this study was 2.08, similar as observed in studies.[13,14] The morbidity load reported in other studies ranges from a low of 1.93 by Shankar R et al[20] to as high as 3.5 by Chauhan P et al.[12] In present study, the most common morbidity found was ocular 53.6%, while in other studies prevalence of eye disease reported ranges from 39.9% by Kumar R et al[19] to 71% by Piramanayagam A et al.[18] The CVS involvement was seen in 40% of elderly. The other researchers[7-20] observed prevalence ranging from 15.5 to 66.2%. Musculoskeletal system was involved in 34.8% of the elderly in present study. Studies done by various other researchers reported prevalence of musculoskeletal system ranging from 23.6% by Ashok KT et al[15] to 69.7% by Chauhan P et al.[12] The prevalence of hearing impairment in this study was 17.7%. The studies done by various other authors reported the prevalence of hearing impairment from as low as 4.5% by Agrawal S et al[17] to as high as 38.1% by Singh N et al.[14] In present study, 17.5% suffered from GIT disorder whereas in other studies prevalence of GIT disorder varies from 8.9% by Kumar R et al[19] to 29.3% by Hameed S et al.[11] The prevalence of endocrinal disease in the present study was 13.9% which includes mostly diabetes (13.2%) comparable to Vaishali JM et al[8] (13.6%) and Ashok KT et al[15] (13.4%) while three people were suffering from hypothyroidism. The prevalence of diabetes in other studies[10,12,13,16-18,20] was lower than that of present study and higher in others[7,9,11,14,19] ranging 16.7 to 43%. The respiratory problem among elderly was 13.4% in the present study while in studies done by Sharma D et al[13] and Ashok KT et al[15] prevalence was much higher i.e. 32.7% and 34.1% respectively. In this study, the skin problem affects about 8.6% of the elderly comparable to studies.[12,13] The prevalence of skin disease reported by Kumar R et al[19] was as high as 19.7%.

The prevalence of disease involving nervous system was 4.77% in the study comparable to that reported by Hameed S et al (4.5%).[11] In other it ranges from 1.25to 21.6%.[15,20]

The genitourinary symptoms contribute 2.95% of the morbidity while in study done by Hameed S et al[11] as high of 12.3%. One female was suffering from cancer cervix in this study while in study done by Murlidhar MK et al[7] two females were suffering from cancer. The frequency of morbidity increases with increase in age (χ^2=40.1, p=0.001). This observation was comparable with that of study by Sharma D et al[13] and Singh N et al.[14] The prevalence of morbidity increases with increase in age and this was found to be significant (χ^2= 10.46, p=0.005). Singh N et al,[14] Kumar R et al[19]and Shankar R et al[20] also observed in their study that morbidity was increasing with increase in age. The prevalence of morbidity was higher in female (91.3%) than that of males (85.0%) and this difference was found as significant (χ^2= 4.21, p=0.04). This observation was in coherent with Sharma D et al,[13] Singh N et al[14] and Piramanayagam A etal[18] while Kumar R et al[19] did not find any significant difference between the two sexes. The widowed elderly were found to be more morbid in comparison to that of married and this difference was significant (χ^2=9.60, p=0.002). Sharma D et al[13] and Shankar R et al[20] also observed in their study that morbidity was comparatively more in widowed elderly than married while Kumar R et al[19] did not find any significant difference between morbidity and marital status of the elderly. The morbidity among those who were living with spouse only or with spouse, children and grandchildren was less as compared to those living with other relatives, children and grandchildren or alone. This difference was found to be significant (χ^2=11.4, p=0.022). The literacy status and socioeconomic status of the elderly has no significant association with morbidity and the same was found in the study of Kumar R et al[19] and Shankar R et al.[20] The employment status of the elderly does not have any significant association with morbidity. Similar observation was made by Kumar R et al.[19]

Conclusion

The present study shows high prevalence of morbidity among the geriatric age group, especially age related disorders which can be prevented or postpone to a later stage some extent by life style modification. Also, there is a need for health care services at all level with special regards to geriatric health.

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