

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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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

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 ones⁵ 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

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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 ($\chi^2=5.1$, $p=0.078$). 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 ($\chi^2=40.1$, $p=0.001$) 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 ($\chi^2=10.06$, $p=0.005$). The morbidity was seen more in elderly females in comparison to that of males and this difference was significant ($\chi^2=4.21$, $p=0.04$). 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 ($\chi^2=9.60$, $p=0.002$). The literacy status has no significant association with morbidity ($\chi^2=0.094$, $p=0.759$). The employment status of elderly also has no significant association with morbidity ($\chi^2=2.50$, $p=0.114$). The socioeconomic status was found to have no significant association with morbidity ($\chi^2=4.93$, $p=0.295$). 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 ($\chi^2=11.4$, $p=0.022$). The financial dependency among elderly had no significant association with morbidity ($\chi^2=2.24$, $p=0.326$), 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

($\chi^2=5.1$, $p=0.078$)

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

($\chi^2=40.1$, $p=0.001$)

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)(%)	
<u>Age group (years)</u>				
60-69	223(85.1)	39(14.9)	262(59.6)	$\chi^2 =$ 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)	
<u>Sex</u>				
Male	159(85.0)	28(14.9)	187(42.5)	$\chi^2 = 4.21$ p= 0.04
Female	231(91.3)	22(8.7)	253(57.5)	
<u>Marital status</u>				
Married	223(84.8)	40(15.2)	263(59.8)	$\chi^2 = 9.60$ p = 0.002
Widowed	167(94.4)	10(5.7)	177(40.2)	
<u>Literacy status</u>				
Illiterate	233(88.3)	31(11.7)	264(60.0)	$\chi^2=0.094$ p = 0.759
Literate	157(89.2)	19(10.8)	176(40.0)	
<u>Employment status</u>				
Currently Working	79(84.0)	15(15.9)	94(21.4)	$\chi^2 = 2.50$ p=0.114
Not working	311(89.9)	35(10.1)	346(78.7)	
<u>Socio economic status</u>				
Upper	1(100.0)	0(0.0)	1(0.2)	$\chi^2 = 4.93$ 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)	
<u>Living arrangement</u>				
Alone	10(100.0)	0(0.0)	10(2.3)	$\chi^2 = 11.4$ 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)	
<u>Financial dependency</u>				
Independent	95(84.8)	17(15.2)	112(25.5)	$\chi^2=2.24$ 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 research¹¹⁻¹⁷ while in some studies¹⁸⁻²⁰ 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 al¹⁷ and Shankar R et al²⁰ 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 al¹⁹ 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 al¹³ 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 al¹⁵ 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 al²⁰ 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 al¹⁹ to 71% by Piramanayagam A et al.¹⁸ The CVS involvement was seen in 40% of elderly. The other researchers⁷⁻²⁰ 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 al¹⁵ 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 al¹⁷ 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 al¹⁹ 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 al⁸ (13.6%) and Ashok KT et al¹⁵ (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 al¹³ and Ashok KT et al¹⁵ 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 al¹⁹ 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 1.25 to 21.6%.^{15,20}

The genitourinary symptoms contribute 2.95% of the morbidity while in study done by Hameed S et al¹¹ as high of 12.3%. One female was suffering from cancer cervix in this study while in study done by Murlidhar MK et al⁷ two females were suffering from cancer. The frequency of morbidity increases with increase in age ($\chi^2=40.1$, $p=0.001$). This observation was comparable with that of study by Sharma D et al¹³ and Singh N et al.¹⁴ The prevalence of morbidity increases with increase in age and this was found to be significant ($\chi^2=10.46$, $p=0.005$). Singh N et al,¹⁴ Kumar R et al¹⁹ and Shankar R et al²⁰ 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 ($\chi^2=4.21$, $p=0.04$). This observation was in coherent with Sharma D et al,¹³ Singh N et al¹⁴ and Piramanayagam A et al¹⁸ while Kumar R et al¹⁹ 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 ($\chi^2=9.60$, $p=0.002$). Sharma D et al¹³ and Shankar R et al²⁰ also observed in their study that morbidity was comparatively more in widowed elderly than married while Kumar R et al¹⁹ 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 ($\chi^2=11.4$, $p=0.022$). 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 al¹⁹ 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.

References

1. Prakash IJ. Ageing in India. Geneva: World Health Organization; 1999 pdf. Available from http://www.who.int/hq/1999/WHO_HSC_AH_E_99.2.pdf [accessed on 4 October 2012].
2. Situation Analysis of the Elderly in India. June 2011. Central Statistics Office. Ministry of Statistics & Programme Implementation Government of India. Available from http://www.mospi.nic.in/mospi_new/upload/elderly_in_india.pdf [accessed on 4 October 2012].
3. Census of India 2011. Chapter 2. The Population Composition. Available from http://www.censusindia.gov.in/vital_statistics/SRS_Report/9Chap%202%20-%202011.pdf [accessed on 9 August 2014].
4. Subaiya L, Bansod DW 2011. "Demographics of Population Ageing in India: Trends and Differentials", BKPAI Working Paper No. 1, United Nations Population Fund (UNFPA), New Delhi. Available from <http://www.isec.ac.in/BKPAI%20working%20paper%201.pdf> [accessed on 12 August 2014].
5. Preparing for the challenges of Population Aging in Asia. Available from http://www.oldagesolutions.org/Publications/Population_aging_in_Asia.pdf [accessed on 12 August 2014].
6. S. Siva Raju. 2011. "Studies on Ageing in India: A Review", BKPAI Working Paper No. 2, United Nations Population Fund (UNFPA), New Delhi. Available from <http://www.isec.ac.in/BKPAI%20working%20paper%202.pdf> [accessed on 10 August 2014].

7. Murlidhar MK, Shetty RS, Kamath A et al. Morbidities among elderly in a rural community of coastal Karnataka: a cross-sectional survey. *Journal of the Indian Academy of Geriatrics* 2014;10:29-33.
8. Vaishali JM, Raghavia M, Rajini S. Health and Social Problems of Elderly Population of Rural Puducherry: A Cross -Sectional Study. *Journal of the Indian Academy of Geriatrics* 2012;8:108-10.
9. Bharati DR, Pal R, Rekha R et al. Ageing in Puducherry, South India: An overview of morbidity profile. *J Pharm Bio all Sci* 2011;3:537-42.
10. Lena A, Ashok K, Padma M et al. Health and Social Problems of the elderly: A Cross-sectional study in Udipi Taluk, Karnataka. *Indian J Community Med* 2009;34:131-4.
11. Hameed S, Kumar N, Naik PM et al. Morbidity pattern among the elderly population in a rural area of dakshina kannada, Karnataka - a cross sectional study. *Natl J of Community Med* 2015;6:89-92.
12. Chauhan P, Chandrashekar V. A study on morbidity pattern among the geriatric people of Venkatachalem village, Nellore District, AP. *MRIMS, J Health Sciences* 2013;1:48-53.
13. Sharma D, Mazta SR, Parashar A. Morbidity pattern and health seeking behavior of aged population residing in Shimla hills of North India: A Cross-sectional Study. *J Fam Med Primary Care* 2013;2:188-93.
14. Singh N, Singh SK, Yadav A et al. Community based study of the morbidity profile among elderly people in a rural area of Patiala district. *J Advance Res Biological Sci* 2012;4:156-61.
15. Ashok KT, Sowmiya KR, Radhika G. Morbidity Pattern among the Elderly People Living in a Southern rural India. *Natl J Res Community Med* 2012;1:15-19.
16. Purty AJ, Bazroy J, Kar M et al. Morbidity Pattern among the Elderly population in the Rural Area of Tamil Nadu, India. *Turk J Med Sci* 2006;36:45-50.
17. Agrawal S, Deo J, Kotwal AS et al. Geriatric Health: Need to make it an essential element of primary health care. *Indian J Public Health* 2011;55:25-9.
18. Piramanayagam A, Bayapareddy N, Pallavi M et al. A cross sectional study of the morbidity pattern among the elderly people: South India. *Int J Med Res Health Sci* 2013;2:372-9.
19. Kumar R, Shafee M. Assessment of morbidity pattern and its correlates among elderly population in rural area of Perambalur, Tamil Nadu, India. *Int J Biomed Res* 2014;5:247-50.
20. Shankar R, Tondon J, Gambhir IS et al. Health Status of Elderly population in rural area of Varanasi district. *Indian J Public Health* 2007;51:56-8.