Original Article

Health Status of Elderly –A Community Based Study

Saxena V[1], Kandpal SD[2], Goel D[3], Bansal S[4]

[1]Additional Professor, Department of Community & Family Medicine, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, [2]Professor and Head, Department of Community Medicine, [3]Professor, Deptt. of Medicine, [4]Director, Research, HIMS, HIHT University.

Abstract

Background: People at or over the age of 60, constitute above 7.7% of total population. Traditionally this segment of population depends on their children for their health and social welfare, However owing to the social and cultural changes that are taking place within the Indian society, this support may not be as readily available, as it is believed. With the changing demography of India, there is urgent need to look at the health status of elderly for planning appropriate health facilities for them.

Objectives: To study biosocial, nutritional and chronic disease risk factor profile of elderly population.

Methods: Cross-sectional Study was conducted in Doiwala block of Dehradun district, Uttarakhand. 122 elderly persons of age 60 years and above were interviewed on predesigned questionnaire by house to house visit in the selected village.

Results: Overall prevalence of risk factors found to be higher amongst elderly females. Unutrition was higher amongst elderly males. In all, 48.6% elderly were underweight ,10.3% were overweight and 5.6% cases were in obese category. As per the Waist and hip ratio 47.2% elderly belonged to the moderate to high risk category. 30.8% people were hypertensive.

Conclusions: Prevalence of high-risk factors for chronic diseases is quite high amongst elderly population, especially amongst elderly females.

Key-words: Elderly, Morbidity, Overweight, Waist-Hip ratio

Introduction:

The geriatric population is defined as population aged 60 years and above[1]. Old age can be broadly characterised by time-altered changes in an individual's biological, psychological and health related capabilities and its implications for the consequent changes in the individual's role in the economy and the society[2]. Degenerative diseases and long-term illnesses also called age dependent diseases affect the elderly. The most common diseases in this category are ischemic heart disease, hypertension, diabetes, cancer, respiratory diseases (due to chronic bronchitis and emphysema)[3] These are characterized by an increasing incidence of these conditions in a geometric or exponential fashion as a function of age[4] .

India has 76.6 million people at or over the age of 60, constituting above 7.7% of total population. According to an estimate elderly will constitute one third of total population of the world by 2050 AD [5] The problems faced by this segment of the population are numerous owing to the social and cultural changes that are taking place within the Indian society. The major area of concern is the health of the elderly with multiple medical and psychological problems. Although, there has been some pioneering work on the elderly in India, but a lot more remains to be done.There is a need to highlight the medical and socio-economic 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[6]

Uttarakhand, is one of the hilly state of the country and still in it's formatives years of establishing the health system in the state. State health policy 2000, has a limited focus for the elderly in the absence of the relevant data. Hence the present research article analyses the health status of elderly, as a pilot initiative to provide some indicators for future researches, developing state policy on elderly age group and planning target oriented primary health care services.

Material and Methods:

Uttarakhand is one of the hilly State of the India, having 13 districts and 95 blocks. The present Study was conducted in Dehradun district which is also the state capital. Dehradun belongs to foothill region of the state. Out of six blocks in the district, Doiwala block was selected for the study as it is the field practice area of the department of Community Medicine, Himalayan

Address for Correspondence:
Vartika Saxena, Additional Professor, Department of Community & Family Medicine, All India Institute of Medical Sciences, Virbhadra Marg, Rishikesh, Uttarakhand-249201.
Email: dr_vsaxena@rediffmail.com

Institute of Medical Sciences, HIHT University. Total no. of villages in Doiwala are 168, out which one village Dharmuchak was randomly selected. Study had attempted to include all the household and residents of the village who are above 60 years of age. Study was conducted using predesigned & pre-tested questionnaire through interview method by trained investigators. Questionnaire included information on Bio-demographic profile, health status and risk factors for emerging diseases. Socioeconomic status was categorized as per Government India's guidelines for Above Poverty Line(APL) and Below Poverty Line(BPL) category[7] . Questionnaire also had information on basic physical parameters- height, hip and waist circumference .Wall mounted measuring tape was used for assessing the height. Height, waist and hip circumference were measured upto nearest 0.1 cm. Weight was recorded upto nearest 0.5 kg. BMI and Waist-Hip ratio was calculated using these parameters. Elderly population was classified for BMI and waist – Hip ratio as per WHO's guidelines.[8,9] Blood pressure was measured using Welch- Allyn shock resistant BP instrument (air based) with appropriate size cuffs and hypertensive's were categorized as per seventh Joint National committee on Prevention, Detection, Evaluation and treatment of High Blood pressure.[10] Blood investigations like Haemoglobin level, Blood sugar and serum cholesterol level were carried out after informed consent and classified as per WHO's & American Medical association's guidelines[11,12,13] . All the investigations have been carried out by automated analyser in the university laboratory. Data has been processed by SPSS version 10.0 of Microsoft windows. To ensure the accuracy, completeness as well as comparability of blood pressure, anthropometric measurements and Interviewees response by all the investigators a common manual of operations was developed. For carrying out anthropometric measurements and blood pressure a separate four members team was constituted to alleviate any inter –observer variability. All the instruments were regularly calibrated before taking them to the field.

Results:

Total 122 elderly were surveyed in a village of population 1348, amounting to 9.05% elderly population. Out of total 122 elderly people, 55were female (45%) & 67 were male (55%). Mean Age of the elderly population was 68.00 ± 2X 7.52 SD. Blood investigations were carried out for 62 individuals as rest of them did not agree for providing the blood sample.

Biosocial profile (Table-1)

Most of the elderly belonged to 60 to 70 years age group (74.6%). Only 7.4% of them were 80 years and above. Eldest person in the study was of 88 years old male. 56.6% elderly did not have any formal schooling. Only one person had completed post graduation amongst all other elderly members in the whole village. 41% elderly belonged to Below Poverty Line as per Government of India's criterion Although India is known for joint family system but surprisingly 71% elderly were living in nuclear family.27% of elderly were widow/ widowers but there was no case of divorce Majority of elderly were working (40.2%) as Government , Non-Government or self employee. Only 9 % were found to be retired.

Table –1 Bio-social profile of elderly population(n=122)

Indicator	No.	Percentage
Age distribution		
60-70	91	74.6
70-80	22	18
>80	9	7.4
Total	122	100
Socioeconomic status		
Above Poverty line(APL)	68	55.7
Below Poverty Line(BPL)	50	41
Not aware	4	3.3
Total	122	100
Type of family		
Nuclear	87	71.3
Joint	35	28.7
Total	122	100

Nutritional profile (Table-2)

Nutritional status could be assessed for 107 elderly out of 122 as 15 elderly could not be contacted inspite of three visits to their household. Out of 107, 52.3% were male.. Total 35.5% elderly were found undernourished and15.9% were in the category of overweight and obese. Undernourishment was more prevalent among males(41.0%) than in females(29.4%) but overweight and obesity was more than three times

prevalent amongst females (25.4%). As per the Waist and hip ratio 47.2% elderly belonged to the moderate to high risk category, strikingly 65.3% females were in the high risk category as compared to only 8.6% males .42% elderly were found to be anaemic. Anaemia was almost in equal percentages in males and females.

Table –2 Nutritional status of elderly

Indicator	Male No. (%)	Female No. (%)	Total No. (%)
Body Mass Index (Kg/m^2)			
Normal (18.50-24.99kg/m^2)	29(51.7)	23(45.0)	52(48.5)
Underweight (<18.50 kg/m^2)	23(41.0)	15(29.4)	38(35.5)
Overweight (25.00-29.99kg/m^2)	2(3.5)	9(17.6)	11(10.3)
Obese (?30.00kg/m^2)	2(3.5)	4(7.8)	6(5.6%)
Total	56	51	107(100%)
Waist –Hip ratio			
Low risk (Male 0.95or below, Female -0.80 or below)	45(81.8)	10(20.4)	55(52.9)
Moderate risk(male -0.96 to 1.0, female-0.81to 0.85)	7(12.7)	7(14.2)	14(13.5)
High Risk(male -1.0+, Female 0.85+)	3(5.4)	32(65.3)	35(33.7)
Total	55	49	104*(100)
Anaemic status (Hb level gm./ dl)			
Normal	19(59.3)	17(56.6)	36(58.1)
Anaemic(Male < 13 gram/dl., female <12 gm./dl.)	13(40.6)	13(43.3)	26(41.9)
Total	32	30	62† (100)
*one male and 2 females did not agree for measuring waist & hip circumference †Only 62 individuals consented for Blood investigations .			

Risk Factors for Chronic diseases(Table-3)

Study indicated 30.8% people belonged to hypertensive category, while 24.3% individuals were in Pre-hypertensive category. Females were (39.2%) hypertensive than males (23.2%) however more males were found in Pre- hypertensive category. Cholesterol levels were found normal in 90% of population but 9.7% cases showed moderate to high risk level and the percentage of females in the high-risk group was higher. 8% population belonged to pre/ frank diabetic status. Regarding addiction, 50% elderly male reported to be having habit of drinking alcohol .Smoking was reported by 31.3% elderly male while tobacco chewing was reported by only 14.9%. Amongst women most common addiction was smoking (25.4%).

Table –3 Prevalence of high risk factors

Indicator	Male No. (%)	Female No. (%)	Total No. (%)
Blood Pressure (mm Hg)			
Normal(<120)	28(50.0)	20(39.2)	48.9(45.7)
Pre-hypertensive(120-139)	15(26.7)	11(21.5)	26(24.3)
Hypertensive(>140)	13(23.2)	20(39.2)	33(30.8)
Total	56	51	107(100)
Cholesterol level			
Normal (< 200 mg/dl)	30(93.8)	26(86.6)	56(90.3)
Borderline (200-239 mg/dl)	2(62.5)	2(06.7)	4(6.5)
High risk (-> 240 mg/dl).	0(0.0)	2(6.7)	2(3.2)
Total	32	30	62(100)
Blood Sugar level			
Normal	30(93.8)	27(90.0)	57(91.9)
Pre-diabetes (> 140 mg/dl)	0(0)	2(6.7)	2(3.2)
Frank diabetes (> 200 mg/dl)	2(6.3)	1(3.3)	3(4.8)
Total	32	30	62(100)

Discussion :

In the present study most of the elderly belonged to 60 to 70 years age group (74.6%). Similar findings were observed by a recent study conducted in Gujrat[14] ,however in the Gujarat study, population of more than eighty years was higher (9%) than the current study population(7.4%).India is one of the few countries in the world in which the sex ratio of the aged favours males, this could be attributed to various reasons such as under-reporting of females, especially widows and higher female mortality in different age groups[15,16]. On the same pattern in the current study also males were in slightly higher proportion (55%).

As per the age care statistics of Helpage India[17] 73% elderly are illiterate in the country. which is comparatively higher than the current study (56.6%),which may be due to overall high level of literacy in the state. In the same report , one-third elderly reported to be living below the poverty line without adequate food, clothing, or shelter however in the current study 41% elderly were Below Poverty line (BPL).

Although India is known for joint family system but surprisingly in the present study 71% elderly were living in nuclear family , which is contrary to the report of Chandwani H et.al (2009)[14],where 38.8% cases were from nuclear family. This could be attributed to high level of migration by younger generation from the state in search of livelihood.

Elderly people who belong to middle and higher income groups are prone to develop obesity and its related complications due to a sedentary lifestyle and decreased physical activity[18]. In the current study, 15.9% elderly population was in the category of overweight and obese. Overweight and obesity was three times more prevalent amongst females .Similarly ,in a study conducted among 206 elderly persons attending the Geriatric Clinic at a tertiary care hospital in Delhi,

about 34% of the men and 40.3% of the women were obese respectively[19].In the present study there was high prevalence of under- nutrition (35.5%), which was higher (41.0%) amongst males than in females (29.4%).A study conducted by Swami(2005)[20] reported 14.3 % of under nutrition amongst elderly population.

As per the Waist and hip ratio, 47.2% elderly belonged to the moderate to high risk category, strikingly 65.3% females were in the high risk category as compared to only 8.6% males . These data show that higher percentage of elderly women is in the category of Overweight and obese than males. It could be attributed to the fact that Indian females, after achieving middle age, begin to lead a sedentary life style because of the traditional Indian social system. Where as in case of males they continue working because of the economic constraint and they are considered bread earner for the family. Second reason could be low levels of estrogens and progesterone after menopause resulting into overweight and obesity and risk factors.

Reddy (1996)[20] & Mohrana et al(2008)[22] reported that majority (51%) of elderly lived with hypertension, Surprisingly in the current study a lower prevalence of hypertension was recorded (30.8%),however 24.3% individuals were in Pre- hypertensive category. Females were more (39.2%) hypertensive than males (23.2%) however more males were found in Pre- hypertensive category. It is of interest to note that even in a state like Kerala, a survey (Irudaya Rajan et al. 1999)[2] on the health of the elderly found that women suffer more morbidity than men in old age, although their death rates are lower. Nirnajana GV (1996)[23] & Chadha SL(1989)[24] have also reported higher level of hypertensive amongst women. Parry SH et.al (2008)[25] in his study on morbidity profile of Kashmiri elderly have found 56% of hypertensive cases. Lower level of hypertension in the current study could be attributed to stress free environment of the village along with strong Indian traditional familial ties.

Cholesterol, Blood sugar level and addiction(Tobacco/ smoking, alcohol) are being considered as risk factors for chronic diseases. In the current study, 9.7% cases showed moderate to high cholesterol levels and the percentage of females in the high-risk group was on the higher side. A study conducted on 160 elderly persons in Kashmir showed increased LDL levels in 38% population & increased triglyceride levels in 23% population.

Current study reported that 8% population belonged to pre/ frank diabetic status which is comparatively lower than the report from Chandigarh[20] (15.0% and 9.92% in overweight and non-overweight elderly). A study conducted in rural community in Tamil Nadu(1995)[27] reported diabetes in 5.85% males and 4.72% in females.

Conclusion:

Study indicates need for implementing community based comprehensive programmes for reducing risk factors & preventing lifestyle diseases especially focussing females. These programmes should encompass preventive, promotive as well as curative services for ensuring healthy aging

This can be achieved by ensuring good quality geriatric health care services at the primary health care level. Health care services should be based on the felt needs of the elderly so that optimum utilization rates of the services can be achieved. It is also important to train the health system functionaries for providing geriatric care. Secondary prevention strategies in the form of screening and early management and tertiary care in the form of rehabilitation should continue as an important strategies for elderly care. ICDS department may consider inclusion of undernourished elderly as their beneficiaries and provide them nutritional support.

Acknowledgement:

Authors acknowledge the financial support rendered by HIHT University. Authors also acknowledge the tremendous support provided by the Rural Development Institute, Himalayan Institute of Hospital Trust & supervisors and students of Himalayan Nursing college for data collection and monitoring of the data collection process. Authors also acknowledge the support of department of Biochemistry and Reference lab of HIHT University for providing the support for biochemical analysis.

References:

1. Elango S. A study of health and health related social problems in the geriatric population in a rural area of Tamil Nadu. Indian Journal of Public Health. 1998; 42: 7-8.
2. Irudaya Rajan S, Misra US, Sharma PS. India's Elderly: Burden or Challenge? New Delhi. Sage Publications. 1999.
3. Park K. Park's Text Book of Preventive and Social Medicine. 20th Jabalpur; Banarsidas Bhanot. 2009; 512-14.
4. Reddy PH. Epidemiological transition in India: Population transition in India. , New Delhi, BR Publishing Corporation. 1989; 1: 281-90.

5. Ingle GK, Nath A. Geriatric health in India: Concerns and solutions. Indian J Community Med. 2008; 33: 214-18.
6. Guha Roy S. Morbidity related epidemiological determinants in Indian aged - an overview. In: Ramachandran CR, Shah B, editors. Public health implications of ageing in India. New Delhi: Indian Council of Medical Research. 1994; 114-25.
7. Mehta j. Poverty in India. Alternative Economic Survey 2004(http://H. Gamma.nic.fi/'otammile/povindia htm
8. Aykroyd, W.R.,J.Mayer (1968). Food and Nutrition Terminology. In: WHO Doc NUT/68.6, Geneva.
9. WHO. 2003. Diet, nutrition and the prevention of chronic diseases. Report of a Joint FAO/WHO Expert Consultation. WHO Technical Report Series No. 916. Geneva. WHO.
10. The seventh report of the Joint National Committee on Prevention, Detection, Evaluation and treatment of High Blood pressure JAMA. 2003; 289: 2560-71.
11. World Health Organization. Nutritional anemia: report of a WHO scientific group. Technical Report Series, no. 405. Geneva: WHO; 1968.
12. Patel P, Macerollo A. Diabetes mellitus: diagnosis and screening. American family physician. 2010; 81: 863-70.
13. Samantray SK. Lipoproteins: laboratory work up. Medical Newsletter. 1989; 6: 10-11.
14. H. Chandwani, P. Jivarajani & H. Jivarajani : Health And Social Problems Of Geriatric Population In An Urban Setting Of Gujarat, India. The Internet Journal of Health. 2009; 9.
15. Sudha S, Irudaya Rajan S. Female demographic disadvantage in India 1981.1991: Role of sex selective abortions and female infanticide. Development Change.1999; 30: 585.
16. Irudaya Rajan S. Ageing and social security. In: Prakash BA, editor. Kerala. s economic development: issues and problems. New Delhi: Sage publications; 1999.
17. Age care statistics: http:// www.helpageindia.com. [cited on 2007 Oct 6].
18. Ahluwalia N. Aging, nutrition and Immune function. J Nutr Health Aging. 2004; 8: 2-6.
19. Singh P, Umesh K, Dey AB. Prevalence of overweight and obesity among elderly patients attending a geriatric clinic in a tertiary care hospital in Delhi, India. Indian J Med Sci 2004;58:162-63.
20. Swami HM, Bhatia V, Gupta AK, Bhatia SPS. An Epidemiological Study of Obesity Among Elderly in Chandigarh. Indian J. of Community Medicine. 2005; 30: 11-13.
21. Reddy PH. The health of the aged in India. Health Transit Rev. 1996; 6: 233-44.
22. Moharana PR, Sahani NC, Sahu T. Health status of geriatric population attending the preventive geriatrics clinic of a tertiary health facility. Journal of Community Medicine. 2008; 4: 17-19.
23. Niranjan GV, Vasundhra MK. A study of health status of aged persons in slums of urban field practice area, Bangalore. Ind J Com Med. 1996; 21: 1-4.
24. Chadha SL, Radhakrishna S, Ramachandran K. Epidemiological study of coronary heart diseases in rural population in Gurgaon district (Haryana State). Ind J Com Med. 1989; 14: 141-7.
25. Parray SH, Ahmed D, Ahmed M, Gaash .Morbidity Profile of Geriatric Population in Kashmir. Indian Journal for the Practising Doctor. 2008; 4.
26. Parray SH, Ahmed D, Ahmed M, Gaash B A Study of Prevalence of Risk Factors for Coronary ArteryDiseases in Asymptomatic Middle Aged and Elderly Subjects. JK Science. 2005; 7: 61-62.
27. Natrajan VS, Ravindran S, Krishnaswami B, Muthukrishnan J, Prabhu P. High prevalence of nutritional disorders and nutrient deficit in Elderly people in a rural community in Tamilnadu. Ind.J. of the Hong Kong Geriatric Society. 1995; 6: 40-44.