International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Health Assessment of Geriatric Population in One of the District of a Hilly State of Northern India

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Abstract: ***Background: Demographic transition has resulted in population aging, which has led to advancement in multiple geriatric problems which has led to advancement in multiple geriatric problems including cognitive impairment (CI) and depression. Geriatric assessment requires evaluation of multiple issues, including physical, cognitive, affective, social, financial, environmental, and spiritual components that influence an older adult's health. Objective: To estimate the morbidity profile, social determinants & functional disability among geriatric population in district Kangra. Methodology: This was across - sectional study, conducted in two Health blocks of district Kangra, selected randomly one Urban and one Rural. Sample size was calculated by using the following formula $4PQ/e^2$, By applying the above formula the desired sample size comes out to be 681 (If the non response rate in the study population = 10%, the desired sample size will be 750) Selection of subject: As the population of district resides more in rural than urban. To achieve the desired proportionate sample size of 750 individuals, 25% sample from Urban and 75%sample from rural were selected for the study. Inclusion criteria: 1) Age above 60 years. 2) Resident of the selected health block. 3) Person who gave consent to participate in the survey. Study duration: - The study was carried out for a period of one year. Strategy: Data was collected as per the following tools: Assessment of Health Statusa) A self - administered structured Questionnaire for interview and examination was implemented. b) Barthel Index for functional disability. Data analysis: Data was entered in Microsoft excel and Epi info was used for data analysis***

Keywords: Elderly, Morbidity profile, Aging, Rural area, Urban area, Prevalence, ADL

1. Introduction

The elderly population is rapidly increasing globally, with the proportion of the world's elderly population expected to double from 11% to 22% between 2000 and 2050.1 In India, the elderly population is expected to increase from 8% in 2012 to 19% in 2050.2 Elderly individuals are vulnerable to chronic diseases, infections, and disabilities. The Indian population is projected to age faster than global populations due to declining birth rates, increasing life expectancy, and a growing elderly population. The elderly population accounted for 7.4% of the total population in 2001, increasing to 8.6% in 2011 and 11.1% by 2025. Despite efforts by healthcare planners and governments, data on elderly health remains inadequate. The rural - urban divide is a significant socio - demographic factor. The national census 2011 states that 833 million people currently live in rural areas.3Rural elders face medical indifference, and the mismatch between urban and rural populations and healthcare systems makes geriatric medicine in India challenging.3The National Program for Health Care of Elderly (NPHCE) aims to develop infrastructure and capacity for elderly healthcare. However, the definition of quality of elderly life and its determinants remains a concern.4A cross - sectional study was conducted in Kangra district, focusing on the geriatric population of 1, 50, 000 over 60 years. The study will be conducted in two health blocks, one urban and on

2. Results

The participants were predominantly female (54.73%), while rural participants were predominantly male (58.07%). All participants were Hindu, in urban area 28.42% (54/190) were belonging to upper lower class, 27.89% (53/190) upper middle class, 22.10% (42/190) lower middle, 16.31% (31%) upper class and 5.26% (10/190) lower class according to Kuppuswamy scale whereas in rural area 42.36% (322/5700) were belonging to upper middle class, 36.71% (279/570) upper class, 12.05% (95/570) lower middle, 07.10% (54/570) upper lower class and 1.31% (10/570) lower class according to Udaipareek scale.

Table 1

Tobacco users	Urban (n=190)	Rural (n=570)	Total
Yes	15 (7.89)	83 (14.56)	98 (12.89)
No	158 (83.15)	454 (79.64)	612 (80.52)
Ex tobacco users	17 (8.94)	33 (5.78)	50 (6.57)
Yes	23 (12.10)	86 (15.08)	109 (14.34)
No	154 (81.05)	429 (75.26)	583 (76.71)
Ex users	13 (6.84)	55 (9.64)	68 (8.94)

Table 2

Asthma	Urban (n=190)	Rural (n=570)	Total
Yes	37 (19.47)	150 (26.31)	187 (24.60)
No	153 (80.52)	420 (73.68)	573 (75.39)
APD			
Yes	22 (0.52)	111 (19.47)	133 (17.5)
No	168 (88.42)	459 (80.52)	627 (82.05)
Intestinal Problem			
Yes	2 (1.05)	19 (3.33)	21 (2.76)
No	188 (98.94)	551 (96.66)	739 (97.23)
Total	190	570	760

Table (1) shows that 92.09% of participants in urban areas had a history of tobacco consumption, with 83.15% currently consuming it. The difference in tobacco consumption between urban and rural areas is statistically

significant. In rural areas, 79.64% of participants were currently alcohol users. In above (table 2) 19.47% of participants in urban areas had asthma, while 26.31% in rural areas, a statistically significant difference ($p<0.05$). Whereas APD was more prevalent in rural areas (19.47%; 111/570) than urban areas (0.52%; 22/190), and intestinal problems were more prevalent in rural areas (19/570) than urban areas (2/190)

Table 3			
Clinical features on examination	Urban (n=190)	Rural (n=570)	Total
Normal	42 (22.10)	143 (25.08)	185 (24.34)
Pre - hypertensive	72 (37.89)	204 (35.78)	276 (36.31)
Stage 1 HTN	40 (21)	128 (22.45)	168 (22.10)
Stage 2 HTN	36 (18.94)	95 (16.66)	131 (17.23)
BMI			
Normal	70 (36.84)	240 (42.10)	310 (40.78)
Overweight	27 (14.21)	101 (17.71)	128 (16.84)
Obese	84 (44.21)	159 (27.89)	243 (31.97)
Underweight	9 (4.73)	70 (12.28)	79 (10.39)
Hypercholesterolemia			
Yes	181 (95.26)	544 (95.43)	725 (95.39)
No	9 (4.73)	26 (4.56)	35 (4.60)
Total	190	570	760
Diabetes			
Yes	27 (14.21)	74 (12.98)	101 (13.28)
No	163 (85.78)	496 (87.01)	659 (86.71)

According to table (3) 37.89% of participants were pre - hypertensive in urban areas, while 35.78% were pre - hypertensive in rural areas. Stage I hypertension was higher in urban areas (21%), while stage II hypertension was higher in rural areas (16.66%). In urban areas, 36.84% had normal BMI, while obesity was higher in rural areas. Hypercholesterolemia was higher in urban areas (95.26%) and higher in rural areas (95.43%). Diabetes was more prevalent in urban areas (14.21%) than rural areas (12.98%).

Table 4			
CAD	**Urban**	**Rural**	**Total**
Yes	9 (4.73)	50 (8.77)	59 (7.76)
No	181 (95.26)	520 (91.22)	701 (92.23)
CVA			
Yes	6 (3.15)	21 (3.68)	27 (3.55)
No	184 (96.84)	549 (96.31)	733 (96.44)
Total	190	570	760
Heart Failure			
Yes	3 (1.57)	5 (0.87)	8 (1.05)
No	186 (97.89)	565 (99.12)	751 (98.81)
Total	**190**	**570**	**760**

The table (4) shows that coronary artery disease was twice in rural area 8.77% (50/570) as compared to urban subjects 4.73% (9/190). CVA cases was almost equal in both the areas 3.68% (21/570) and 3.15% (6/190) in rural & urban area respectively, whereas heart failure was observed to be higher in urban area 1.57% (3/190) as compared to rural area 0.87% (5/570)

Table 5			
Audition problem	**Urban**	**Rural**	**Total**
Yes	22 (11.57)	102 (17.89)	124 (16.31)
No	168 (88.42)	468 (82.10)	636 (83.68)
Vision problem			
Yes	72 (37.89)	325 (57.01)	397 (52.23)
No	118 (62.10)	245 (42.98)	363 (47.76)
Cancer			
Yes	0 (0)	1 (0.17)	1 (0.13)
No	190 (100)	569 (99.82)	759 (99.86)
Thyroid disorder			
Yes	11 (5.78)	15 (2.63)	26 (3.42)
No	179 (94.21)	555 (97.36)	734 (96.57)
Depression			
Yes	0 (0)	5 (0.87)	5 (0.65)
No	190 (100)	565 (99.12)	755 (99.34)
Total	**190**	**570**	**760**

The table (5) shows that 11.57% of participants had audition problems in urban areas and 17.89% in rural areas. Visual impairment was significantly higher in urban areas. No cancerous condition was found in rural areas, while only 0.17% had cancer in urban areas. Thyroid disorder and depressive illness were similar in both urban and rural areas. CVA cases were almost equal in both areas, and heart failure was higher in urban areas.

The table 6 shows that osteoarthritis and back pain are more prevalent in rural areas than in urban areas, with rheumatoid arthritis being more prevalent in urban areas. Other illnesses like tendonitis, bursitis, fibromyalgia, and lupus are more common in rural areas.

T Table 6			
Osteoarthritis	**Urban (n=190)**	**Rural (n=570)**	**T Total**
Yes	50 (26.31)	210 (36.84)	260 (34.21)
No	140 (73.68)	360 (63.15)	500 (65.78)
Rheumatoid arthritis			
Yes	7 (3.68)	13 (2.28)	20 (2.63)
No	183 (96.31)	557 (97.71)	740 (97.36)
Back pain			
Yes	32 (16.84)	139 (24.38)	171 (22.5)
No	158 (83.15)	431 (75.61)	589 (77.5)
Another illness: Tendinitis, Bursitis, Fibromylegia			
Yes	0 (0)	1 (0.17)	1 (0.13)
No	185 (97.36)	543 (95.26)	728 (95.78)
Don't know	5 (2.63)	26 (4.56)	31 (4.07)
Total	**190**	**570**	**760**

It was found that 96.31% of rural participants had occasional incontinent bowl habits, while 98.59% and 100% had occasional incontinence in urinary habits. In rural areas, only 0.52% needed help for personal care activities, and 99.47% were able to perform activities independently. Only 0.35% needed help during toilet use, and 99.64% were independently using the toilet. Urban participants were able to use stairs without assistance, while rural participants needed minor help for sitting, standing, and shifting. All urban participants could walk and move independently, and help during dressing was needed by 0.35% in rural areas. The study found that 98.42% of participants in rural areas lived in a joint family, while all urban participants lived in a joint family. Care during illness was provided by children

and spouses in urban areas, while in rural areas, only 0.02% were dependent on their spouse. Financial independence was higher in rural areas, with a significant difference between urban and rural areas. Additionally, rural participants preferred allopathic doctors, local quacks, and AYUSH doctors over local quacks and AYUSH doctors.

3. Discussion

The participants in our study were predominantly from rural area (75%) as compared to urban area (25%) and most of the respondent in urban area were females 54.71% (104/190) as compared to rural area where 58.07% (417/570) were male participants. Thyroid disorders among urban area was 5.78% (11/190) according to our study which is higher than the national prevalence of thyroid disorders among elderly which stands at 0.5 - 3% (hypothyroidism: 2 - 5%, hyperthyroidism: 10 - 15%) [5]. The higher prevalence can be attributed to a chronic iodine deficiency state as our study area is known for iodine deficiency. According to the study conducted by Banker K the prevalence of thyroid disorders as 9/530 (1.7%) in a study on residents of geriatric home in Ahmedabad and a cross sectional study by Srivastava K in urban area of Agra, thyroid disorders were observed as 7/500 (1.4%), [6]whereas thyroid disorder among rural area was 5.78% (11/190) in current study. In the urban area 7.89% (15/190) were currently smokers and 8.94% (17/190) were ex tobacco users in comparison to rural area where the percentage of current smokers was 14.56% (83/570) and 5.78% (33/570) were ex tobacco users, non - smokers among urban and rural area were 83.15% (158/190) & 79.64% (454/570) respectively. According to global adult tobacco survey - 2, fact sheet (2016 - 17), national prevalence of current tobacco smoking among adult was 10.7% (19% men, 2% women) and 14.2% in Himachal Pradesh. The prevalence of smoking in urban area in our study was less than that reported by HP state and comparable in rural area. Out of 190 study subjects in urban area 12.10% (23/190) were currently alcohol users, 6.84% (13/190) ex alcohol users and 81.05% (154/190) were teetotallers, as compared to rural area in which out of 570 study subjects, 15.08% (86/570) were currently alcohol users, 9.64% (55/570) ex alcohol users and 75.26% (429/570) were teetotallers. National prevalence of current alcohol use among 10 - 75 years is 14.6% whereas in HP state it is 17.6% which is higher than our study. The history of smoking and alcohol abuse was present among male participants only in current study. In urban area 36.84% (70/190) study participants had normal BMI, 14.21% (27/190) were overweight, 44.21% (84/190) obese and 4.73% (9/190) were underweight, which is lower than that reported by different investigators like epidemiological study of obesity among elderly in Chandigarh by H. M. Swami, V Bhatia et al [7]. The prevalence of overweight was 33.14%, preobesity 25.41 and obesity 7.54% among elderly. Hypercholesterolemia was observed among 95.26% (181/190) and 95.43% (544/570) study subjects in urban & rural area respectively and diabetes was found to be present in 14.21% (9/190) in urban and 12.98% (26/570) rural area in our study on clinical examination based on questionnaire only.

Musculoskeletal disorders among geriatric population in urban & rural areain our study: Participants suffering from osteoarthritis & back pain was more in rural area 36.84% (210/570) & 24.38% (136/570) in comparison to urban area 26.31% (50/190) &16.84% (32/190) which can be due to more involvement of rural population in physical work. Rheumatoid arthritis was observed in 2.28% (13/570) and 3.68% (7/190) in rural & urban area respectively. As per a study by Swami HM at Chandigarh, the prevalence of osteoarthritis was 183/361 (50.5%) and the frequency was 159/313 (50.8%) and 24/49 (49%) in urban and rural area respectively. They observed back pain amongst 63 (17.4%) elderly with prevalence of 48 (15.3%) amongst urban residents and 15 (30.6%) amongst rural residents. Singh P observed that the most common musculoskeletal problem in elderly was arthritis (143/418; 34.21%) followed by low backache, shoulder pain, fracture and kyphosis as 55 (13.15%), 33 (7.89%), 17 (4.07%) and 8 (1.91%) respectively.8There is variation in the prevalence of musculoskeletal problems in our study which can be because of the work of population as they are involved in heavy physical work namely labour leading to backache but because of healthy lifestyle and less sedentary lifestyle, they are less prone to age related musculoskeletal problems. Females are more prone to musculoskeletal problems due to hormonal changes post menopause leading to osteoporotic and degenerative changes. Others conditions such as audition problem was prevelant in 11.57% (22/190) in urban area & 17.89% (102/570) in rural area. The ear problems were less prevalent in our region as compared to other studies, possible reason can be due to better health facilities. Piramanayagam A observed that among the 594 elderly persons 138 (23.3%) were affected by ear diseases; 58 (42.1%) were men and 80 (57.8%) were women.9Jadhav VS in a cross sectional study in rural area of Aurangabad observed that 124 (41.75%) males and 127 (38.71%) in females had Cataract in single or both eyes. Presbyopic morbidity was present in 26 (8.75%) males and 42 (12.80%) females.10 (3.36%) males and 3 (0.91%) females had active conjunctivitis. While 7 (2.35%) males and 6 (1.82%) females had pterygium.1[0] In a study by Prakash R in urban area of Udaipur the cataract was the cause of diminishing vision in 44% of the subjects, whereas, 24.7% had refractive errors and only in 0.66% the cause was glaucoma.1[1]It was observed that there was no mental disorders among study participants in urban area, while depressive illness was observed among 0.87% (5/570) study subjects in rural area which is lower than similar studies conducted across the country, possibly because participants in urban area had better life style and more educated as compared to rural area. Piramanayagam A et al reported that among the 594 elderly persons, 140 (23.6%) suffered with mental illness; of which women were 98 (70.0%) and men were 42 (30.0%) ($p<0.001$). Depression was present in 117 (19.7%). It was significantly higher among women, 87 (30.6%) compared to men, 31 (10.0%) ($p<0.001$).[13] (2.2%) and 10 (1.7%) elderly persons were suffering from anxiety disorder and dementia respectively.[12]

Functional disability score assessment of study subjects in current study based on Barthel index of activities of daily living: On assessing the functional disability score it was observed that the urban participants were performing

personal care activities independently with normal bowel and urinary habits whereas in rural area occasional incontinency in bowel and urinary habits was observed among 3.68% (21/570) and 1.40% (8/570) study subjects respectively and only 0.52% (3/570) needed some help while performing personal care activities. All the participants in urban area were able to use stairs without any assistance, while only 0.87% (5/570) of study subjects in rural area needed some help, majority of rural participants were able to sit, stand and walk independently, only 0.52% (3/570) needed help of one person. All the study subjects of the urban area prefer allopathic system during their illness whereas in rural area 88.59% (505/570) prefer allopathic system, 9.64% (55/570) local quacks and 1.75% (10/570) AYUSH system of medical care during their illness, which is comparable to similar study conducted by Deepak et al[13] in relation to preference for allopathic system.

Minimental state examination (according to Bharmouri version). It was observed that in urban area 4.73% (9/190) subjects had no cognitive impairment, 40% (76/190) had mild cognitive impairment and 55.26% (105/190) subjects were suspected cases of dementia in comparison to rural area where 1.75% (10/570) subjects had no cognitive impairment, 44.38% (253/570) had mild cognitive impairment and 54.21% (412/570) were suspected cases of dementia. The reason for higher number of suspected cases could be higher level of illiteracy with some degree of difficulty in non responding through BMSE, so secondary examination is needed.

4. Conclusion

In our study, cardiovascular diseases were present in 68.1%, musculoskeletal disorder in 63.6%, vision problem in 57%, respiratory disease in 27.9%, GI disorder in 22.8% and auditory problem in 17.9%. The study brings to light that almost all elderly had reported to have one or the other health problem. Most of the health problems of elderly are controllable if addressed properly. Hence there is an urgent need of dealing the geriatric health problems in comprehensive and coordinated approach by health personnels and good compliance by the elderly people and their family members. The capacity building of primary health care providers will help in the early detection of morbidities among the elderly and referring the needy elderly on time to the facilities will definitely help in active and healthy aging.

Conflicts of Interest: None declared.

Funding: No external funding

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