

A COMPARATIVE ANALYSIS OF THE MORBIDITY PROFILE AMONG THE GERIATRIC POPULATION OF URBAN AND RURAL AREAS

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Received : 04/05/2023
Received in revised form : 10/06/2023
Accepted : 22/06/2023

Keywords:
Morbidity, Geriatric, Urban, Rural.

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DOI: 10.47009/jamp.2023.5.3.494

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (3); 2522-2527



Abstract

Background: Based on the Ageing & Health Factsheet published by the World Health Organisation (WHO), it is projected that the global population aged 60 years and above will experience a significant increase, nearly doubling from 12% to 22% between the years 2015 and 2020. Furthermore, by the year 2020, the number of individuals aged 60 years and older is expected to surpass the count of children under the age of 5. Additionally, it is anticipated that by 2050, approximately 80% of older individuals will reside in countries categorised as low- and middle-income. A comparative analysis of the morbidity profile among the geriatric population of urban and rural areas. **Materials and Methods:** This research defines the geriatric population as those aged 60 years and above. This research included individuals from the geriatric population, namely those aged 60 years and above, who expressed their willingness to participate, provided written permission, and committed to remaining in the study region for a minimum duration of one year. A total of 400 samples will be evenly distributed across urban and rural locations, with 200 full samples taken from each area for the purpose of analysis and interpretation. During the visit to the household, after an initial self-introduction and an explanation of the aim of the visit to all members of the family, written agreement was obtained from the responder. **Result:** In the urban region, it was observed that 70% of the geriatric population fell into the age range of 60-70 years, while 23% of the geriatric population belonged to the age range of 70-80 years. Conversely, in the rural area, the corresponding figures were 62.5% and 30.5% respectively. The proportion of elderly males in urban and rural areas is 55% and 51.5% respectively. The study reveals that the senior population residing in urban areas is 70.5%, while in rural areas it accounts for 82%. The findings of this research indicate that acid peptic disease is the predominant gastrointestinal problem, accounting for 53.5% of cases. This is followed by constipation at 43.75% and dental caries at 39.25%. The prevalence of diarrhoea and haemorrhoids is around 9.5% each. A significant proportion of the senior population, namely 73%, were found to be afflicted with anaemia. **Conclusion:** The current investigation demonstrates a significant frequency of morbidity among the geriatric population. It is essential to foster awareness among senior individuals on the need of undergoing regular health check-ups as a means of preventing and promptly identifying any health issues.

INTRODUCTION

The process of ageing is an inherent biological phenomenon that operates autonomously and is mostly outside the realm of human influence.^[1] The Indian government implemented the National Policy on Older Persons in January 1999, whereby elderly people or senior citizens are defined as those who are 60 years of age or older.^[2] The United Nations defines the cutoff age for an older person as 60 years and above.^[3] The process of ageing is multifaceted,

resulting in various physiological and biological alterations within the body. As individuals grow older, they encounter numerous challenges in their daily lives, encompassing physical, mental, emotional, and social aspects. These challenges contribute to the development of various health issues in different body systems, ultimately leading to disability and mortality.^[4] It is projected that by the year 2025, India would have a significant rise in its old population, resulting in a heightened prevalence of chronic illness, death, and impairment. The

aforementioned chronic and debilitating conditions necessitate immediate medical intervention, palliative care, rehabilitative care, and physiotherapy.^[5,6] However, the implementation of geriatric healthcare in India remains a distant aspiration due to the scarcity of specialised and trained personnel, as well as the absence of infrastructure beyond tertiary care hospitals.^[7]

Based on the Ageing & Health Factsheet published by the World Health Organisation (WHO), it is projected that the global population aged 60 years and above will experience a significant increase, nearly doubling from 12% to 22% between the years 2015 and 2020. Furthermore, by the year 2020, the number of individuals aged 60 years and older is expected to surpass the count of children under the age of 5. Additionally, it is anticipated that by 2050, approximately 80% of older individuals will reside in countries classified as low- and middle-income. The rate at which the population is experiencing the process of ageing is much more rapid in comparison to previous periods. All nations have significant obstacles in ensuring the preparedness of their health and social systems to effectively respond to the implications of this demographic transition. As individuals reach a specific chronological age, typically starting from 60 years and beyond, they experience a gradual onset of structural and functional modifications throughout various bodily systems. These changes, known as degenerative changes, render them susceptible to a range of medical and psychological issues. Consequently, these individuals face limitations in their economic, social, and recreational aspects of life, often leading to dependency in various situations. The process of ageing is correlated with heightened susceptibility to enduring health conditions. The identification of characteristics that might predict the attainment of oldest-old status is of utmost importance in order to facilitate the development of efficacious therapeutic therapies and public health policies. In the context of clinical practise, it is important to take into account the patient's prognosis in order to make well-informed judgements. Comorbidity and functional status have been identified as the most robust and consistent predictors of death among elderly individuals. Based on the data from the Population Census of 2011, it has been observed that the old population in India, defined as those aged 60 years or over, amounts to around 104 million individuals. This demographic comprises 53 million females and 51 million men. According to a survey published by the United Nations Population Fund and HelpAge India, it is projected that the old population would reach a total of 173 million individuals by the year 2026. The proportion and magnitude of the senior population are both seeing growth throughout time. The fraction has shown an upward trend, rising from 5.6% in 1961 to 8.6% in 2011. The prevalence of this condition was somewhat lower among men, with a rate of 8.2%, compared to females, who had a rate of 9.0%. In relation to the distinction between rural and urban

regions, it is observed that 71% of the old population dwells in rural areas, whilst 29% is located in urban areas. In rural regions, a majority of old males (66%) and a significant proportion of senior females (28%) were engaged in employment. Conversely, in urban areas, a smaller percentage of elderly males (46%) and a far lower proportion of elderly females (about 11%) were participating in the workforce. The percentage of older individuals who were literate had a notable rise, rising from 27% in 1991 to 44% in 2011. The literacy percentage among old ladies is around 28%, which is less than half of the literacy rate among senior men, which stands at approximately 59%. The urban areas exhibited a significantly greater prevalence of cardiac disorders among the senior population compared to the rural regions.^[6]

There are several significant rationales for the measurement of comorbidity, which include the need to account for confounding variables, the identification of impact modifications, the prediction of research results or illness progression, and ultimately, the enhancement of statistical efficiency. The words comorbidity and multimorbidity have historically been used interchangeably. However, in recent years, there has been a growing consensus to differentiate between these two categories.^[7,8] While a definitive benchmark for assessing multimorbidity has yet to be created, there are many existing instruments. However, the question of which comorbidity index is most suitable for research purposes remains uncertain.

MATERIALS AND METHODS

The present research was a community-based observational, descriptive, and cross-sectional investigation done in both a rural field practise region and an urban slum, which served as the urban field practise area for the Medicine department. Following the successful clearance by the Institutional Ethics Committee, the research was conducted using a semi-structured pretested schedule. According to the Indian norm, those who are 60 years of age or more are classified as "senior citizens" or belong to the "geriatric age group".^[9] This research defines the geriatric population as those aged 60 years and above. This research included individuals from the geriatric population, namely those aged 60 years and above, who expressed their willingness to participate, provided written permission, and committed to remaining in the study region for a minimum duration of one year. Individuals who were not present or obstructed access to their house during the data collecting visit, as well as those who were admitted to a healthcare facility or experiencing severe illness, were excluded from participation in this research. A total of 400 samples will be evenly distributed across urban and rural locations, with 200 full samples taken from each area for the purpose of analysis and interpretation.

During the visit to the household, after an initial self-introduction and an explanation of the aim of the visit to all members of the family, written agreement was obtained from the responder. The study collected socio-demographic data, including variables such as age, gender, religion, residence, mother tongue, marital status, living arrangement, type of family, education, occupation, per-capita income, and type of house. Additionally, morbidity profiles were assessed, encompassing conditions such as osteoarthritis, visual impairment, hearing impairment, hypertension, stroke, obesity, signs of thyroid hypo-function, bronchial asthma, obstructive pulmonary symptoms, and depression. The detection of depression was accomplished by the use of the Geriatric Depression Scale (GDS). The data that was gathered was thereafter organised and processed using Microsoft Excel, and subjected to analysis using SPSS version 25.0. Various statistical techniques, such as tabulation, calculation of means and standard deviations, chi-square tests, z-tests, and multiple logistic regression, were employed in the analysis.

RESULTS

In the urban region, it was observed that 70% of the geriatric population fell into the age range of 60-70 years, while 23% of the geriatric population belonged to the age range of 70-80 years. Conversely, in the rural area, the corresponding figures were 62.5% and 30.5% respectively. The proportion of elderly males in urban and rural areas is 55% and 51.5% respectively. The study reveals that the senior population residing in urban areas is 70.5%, while in rural areas it accounts for 82%. Furthermore, a significant proportion of the urban geriatric population, namely 18.5%, consists of individuals who are widowed or divorced. The prevalence of widowhood and divorce was much higher in rural areas, accounting for 38% of the population, compared to urban areas where the corresponding figure was 18.5%. This survey revealed that a total of 41.5% of the sample population experienced overcrowding in their place of residence. The prevalence of overcrowding was much greater in metropolitan regions, with a rate of 60%, compared to rural areas, where the rate was 22%. Approximately 44.75% of the overall senior population exhibit financial independence. Among the remaining 55.25% who are financially dependent, the rural geriatric population has a somewhat greater prevalence (58.5%) compared to the urban population (53%).

The findings of this research indicate that acid peptic disease is the predominant gastrointestinal problem, accounting for 53.5% of cases. This is followed by constipation at 43.75% and dental caries at 39.25%. The prevalence of diarrhoea and haemorrhoids is around 9.5% each. A significant proportion of the senior population, namely 73%, were found to be afflicted with anaemia. Notably, the urban population exhibited a higher prevalence of anaemia, with 78% affected. No statistically significant correlation was found between gender and the presence of anaemia. In the research, it was found that 64.5% of the study populations had visual impairment. Among these individuals, 20.25% were diagnosed with cataract, while 44.25% were identified as having refractive error difficulties. The incidence of suffering was higher among the urban population in both situations. In relation to respiratory ailments among the elderly population, bronchial asthma has the greatest prevalence at 19.25%, followed by chronic bronchitis at 15.75%, upper respiratory tract infection at 11.75%, and pneumonia at 3.25%. In all instances, the urban elderly population had a little greater degree of suffering compared to their rural counterparts. A total of 34.5% of the study populations exhibit symptoms of hypertension, while 13.5% are afflicted with ischemic heart illnesses or coronary artery disorders. The prevalence of these factors was much higher in urban populations, with rates of 45% and 20% respectively, compared to rural communities, where rates were 24% and 7% respectively. The prevalence of tremor and paralysis among the elderly population is 8.5% and 1.75%, respectively. It is worth noting that urban age groups exhibit somewhat higher rates of both conditions, with a prevalence of 10% for tremor and 2% for paralysis. Among the older population, osteoarthritis was found to be the most prevalent musculoskeletal condition, accounting for 52% of cases. This was followed by gout, which accounted for 13.75% of cases, myalgia at 11.75%, and trauma/fracture at 4.5%. The urban elderly population had a higher degree of distress in all instances. A total of 24.5% of the study populations were diagnosed with diabetes mellitus (Type-II), while 6.5% were found to have a thyroid problem. In both instances, it was shown that the urban elderly population had a higher prevalence of suffering compared to their rural counterparts, with rates of 35% and 8% respectively. The prevalence rates of bladder and bowel incontinence were 8% and 4% respectively. The prevalence of urinary tract infections (UTIs) is reported to be 4%. The prevalence of genital prolapse among females was found to be 4%, whereas prostate issues were reported in 30% of men. The incidence of prostate cancer was found to be 1%.

Table 1: Frequency distribution for numeric variables with Independent T-test analysis

	Urban		Rural	
	Number	Percentage	Number	Percentage
Age				
60-70	140	70	125	62.5

70-80	66	23	61	30.5
Above 80	14	7	14	7
Gender				
Male	110	55	103	51.5
Female	90	45	97	48.5
Type of family				
Nuclear	59	29.5	36	18
Joint	141	70.5	164	82
Marital status				
Married	153	76.5	115	57.5
Widow/ Divorced	37	18.5	76	38
Unmarried	10	5	9	4.5
Over-crowing				
Present	120	60	44	22
Absent	80	40	156	78
Working status				
Working	91	45.5	76	38
Non-working	109	54.5	124	62
Financial dependent				
Dependent	106	53	117	58.5
Independent	96	47	83	41.5

Table 2: Morbidity profile of study participants

	Urban		Rural		P value
	Number	Percentage	Number	Percentage	
Body mass index (Kg/M2)					0.11
Underweight	17	8.5	10	5	
Normal	122	61	150	75	
Overweight	49	24.5	31	15.5	
Obese	10	5	9	4.5	
Gastro-Intestinal disorder					0.23
Dental Carries	68	34	89	44.5	
Acid Peptic Disorder	109	54.5	105	52.5	
Loose motion	15	7.5	23	11.5	
Constipation	90	45	85	42.5	
Piles	20	10	18	9	
Anemia					0.18
Present	156	78	136	68	
Absent	44	22	64	32	
Visual impairment					0.19
Cataract	57	28.5	24	12	
Refractive error	67	33.5	110	55	
Respiratory problem					0.26
URTI	26	13	21	10.5	
Pneumonia	8	4	5	2.5	
Bronchial asthma	42	21	35	17.5	
Chronic bronchitis	32	16	31	15.5	
COPD	9	8.5	12	6	
Ca Lung	0	0	2	1	
Cardiovascular Disease(s)					0.29
Hypertension	90	45	48	24	
IHD/CAD	40	20	14	7	
Neurological problems					0.37
Tremor	20	10	14	7	
Paralysis	4	2	3	1.5	
Musculoskeletal problems					0.22
Osteoarthritis	128	64	80	40	
Gout	35	17.5	20	10	
Myalgia	27	13.5	20	10	
Trauma/Fracture	10	5	8	4	
Endocrine disorder					0.13
Diabetes	70	35	28	14	
Thyroid disorder	16	8	10	5	
Depression status					0.33
No depression	110	55	120	60	
Depression	90	45	80	40	

Table 3: Distribution of geriatric population according to depression status and gender

	Male =213		Female=187		Total
	Number	Percentage	Number	Percentage	
Depression Status					
No depression	141	66.20	89	47.59	230

Depression	72	33.80	98	52.41	170
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This research reveals that a significant proportion of the elderly population, namely 42.5%, is experiencing symptoms of depression. The prevalence of depression was somewhat higher among urban senior populations (45%) compared to their rural counterparts (40%). A significant proportion of the geriatric population, namely 42.5%, exhibited symptoms of depression. The data revealed a higher prevalence of suffering among female senior populations (52.41%) compared to their male counterparts (33.80%). The observed disparity demonstrated a statistically significant correlation ($p < .001$) between gender and depression. When comparing the urban study population to the rural population, it was found that 48% of the urban population sought medical care from private practitioners, but just 20% of the rural population did the same. In contrast, the attendance rates for Quack practitioners were found to be 13% in metropolitan areas and 36% in rural areas. The prevalence of self-medication was found to be greater among the urban study group compared to the rural population.

DISCUSSION

In the current investigation, the majority of elderly individuals were found to fall between the age range of 60-70 years, comprising 70% of the total sample. A research conducted by Saxena V, et al (2012),^[10] in Dehradun revealed that 74.6% of the elderly participants were between the age category of 60-70 years. In the current investigation, a significant proportion of the elderly participants were found to be without employment, which aligns with the findings reported by Soni S, et al (2016),^[11] in Bihar and Kapil U, et al (2018),^[12] in Nainital, Uttarakhand. Furthermore, our research revealed that a significant proportion, namely 56.3%, of the elderly population in rural regions were found to be dependent, whereas 53.4% of the elderly in urban areas exhibited dependency. Similar findings were reported in a research conducted by Soni S, et al (2016),^[11] in Bihar, where the prevalence of reliance was recorded at 67.2%. In the current investigation, it was shown that around 82% of the older participants were afflicted with musculoskeletal disorders. Moreover, 64.5% of the study group had visual impairment, with 20.25% attributed to cataracts and 44.25% attributed to refractive errors. In relation to respiratory illnesses among the elderly population, bronchial asthma has the greatest prevalence at 19.25%, followed by chronic bronchitis at 15.75%, upper respiratory tract infection at 11.75%, and pneumonia at 3.25%. In all instances, the urban elderly population had a little greater degree of suffering compared to their rural counterparts. Approximately 34.5% of the study populations exhibit symptoms of hypertension, whereas 13.5% are affected by ischemic heart disorders or coronary artery diseases. Among the

older population, osteoarthritis was found to be the most prevalent musculoskeletal condition, accounting for 52% of cases. This was followed by gout, which accounted for 13.75% of cases, myalgia at 11.75%, and trauma/fracture at 4.5%. The present investigation yielded comparable results to those reported by Verma V, et al (2016),^[4] in Allahabad and Chauhan P, et al (2013),^[13] in Nellore. In our research, it was found that 47.5% of the aged population had symptoms of depression, a prevalence rate consistent with previous studies conducted in India.

The findings of this study exhibit resemblances to those of a study conducted by Verma V, et al,^[4] (2016) in Allahabad. Verma and colleagues discovered that the musculoskeletal system was the most frequently affected health system, accounting for 68.5% of cases. Additionally, they observed that psychological, digestive, ear, and respiratory systems were also commonly involved, with prevalence rates of 59.75%, 29.75%, 13%, and 11.25% respectively. Chauhan et al. (2013) conducted a research in Nellore that examined the prevalence of several health conditions among older individuals.^[13,14] The study revealed the involvement of many bodily systems, including the musculoskeletal system (69.7%), digestive system (16.2%), cardiovascular system (38.3%), respiratory system (26.9%), neurological system (6.2%), psychological system (12.8%), and urogenital system (5.7%). The research conducted by Mullick et al (2018),^[15] in Bhubaneswar similarly yielded comparable findings with respect to the prevalence of cardiovascular illnesses, which was reported to be 31.70%.^[16]

CONCLUSION

The current investigation demonstrates a significant frequency of morbidity among the geriatric population. It is essential to foster awareness among senior individuals on the need of undergoing regular health check-ups as a means of preventing and promptly identifying any health issues.

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