



## Morbidity And Multimorbidity In Geriatric Age Population- A Cross Sectional Analysis

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### Abstract

**Introduction-** The global population is experiencing a significant demographic shift, with a substantial increase in the elderly population. Multimorbidity, defined as the coexistence of multiple chronic diseases, has become a growing public health concern worldwide. Factors contributing to this include increased life expectancy, urbanization, high body-mass index and lifestyle changes. 17% elderly in rural areas and 29% in urban areas suffer from a chronic disease.

**Material And Methods -**This is a cross-sectional observational study conducted at tertiary care center to assess the prevalence of geriatric morbidity among individuals aged 60 years and above. Data was collected using a predesigned and pretested proforma. The study includes elderly individuals who visit the hospital for other work and the people of nearby village whom we visited as a part of our survey.

**Result-** most of our participants were young old i.e. 54% followed by old old i.e. 28%. 54% participants were male and 46% were females. Most common morbidity was musculoskeletal problem (62.4%), oral health problem (52.8%), hypertension (49.6%) and ophthalmic problem (49.6%). Only 14.4% participants were having diabetes mellitus and 13.6% have no health related morbidity.

**Conclusion-** Despite limitations, the findings highlight the need for tailored healthcare services that address the specific morbidity patterns in elderly populations. Policymakers should prioritize integrated care models for managing multimorbidity, particularly for musculoskeletal and ophthalmic problems.

**Keywords:** multimorbidity, elderly population, morbidity, healthcare services

### Introduction

The global population is experiencing a significant demographic shift, with a substantial increase in the elderly population<sup>1</sup>. This trend has led to a rise in both physical and mental health morbidities among older adults. Multimorbidity, on the other hand, is a situation in which many chronic ailments co-occur without any of the diseases serving as the index condition<sup>2</sup>. Factors contributing to this include increased life expectancy, urbanization and high body-mass index and lifestyle

changes. The rising prevalence of non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes, and respiratory disorders further exacerbates the burden on healthcare systems globally.<sup>3</sup> The United Nations Population Division reported that the global share of older people (aged 60 years or over) increased from 8% in 1950 and 9% in 1990 to 12% in 2013, and will continue to grow to an estimated 21% by 2050.<sup>4</sup> India too is an aging nation since 7.7% of

its population is above 60 years of age.<sup>5</sup> In India, the elderly population is expanding rapidly, with projections estimating a rise from 8% of the population in 2015 to nearly 19% by 2050.<sup>4</sup> About 21% of the elderly in India reportedly have at least one chronic disease. 17% elderly in rural areas and 29% in urban areas suffer from a chronic disease. Hypertension and diabetes account for about 68% of all chronic diseases.<sup>6</sup> This demographic transition has led to an increasing prevalence of chronic illnesses and disability among older adults. A considerable proportion of the elderly face challenges related to non-communicable diseases, frailty, and mental health conditions. The census 2011 collected information on 8 different types of disabilities which are related to: 1. speech, 2. hearing, 3. seeing, 4. movement, 5. mental retardation, 6. mental illness, 7. any other, and 8. multiple disabilities.<sup>7</sup> In rural areas, limited access to healthcare services exacerbates these issues, while urban areas see rising cases due to lifestyle changes. Cardiovascular disease (CVD), diabetes, hypertension, cancer, and chronic respiratory diseases together formed around 60% of all the factors responsible for deaths in India in 2014. About 27% of Indian adults suffer from cardiovascular disease and 18% are diagnosed with diabetes, with the prevalence being much higher in urban areas as compared to rural areas. Around 10% people living in rural areas have no access to essential medicines and only 19% have a health insurance.<sup>6</sup> Despite these challenges; there is a lack of comprehensive and region-specific data on the health status of older adults, highlighting the need for focused research in this area. Multimorbidity comprises of different conditions which may be concordant or discordant. However, some chronic conditions are more likely to cluster than others. This may be due to biological, behavioral, or environmental factors.<sup>8</sup> Understanding the health challenges faced by the elderly is critical for planning effective healthcare interventions and policies. Although numerous studies have been conducted on geriatric health globally, regional disparities and gaps in data remain significant. This study seeks to address these gaps by analyzing the prevalence of geriatric morbidity specific in our country India. The findings of our study will help us to provide valuable insights for developing targeted strategies and recommendations to improve healthcare delivery to the old age

population and quality of life for older adults in our community.

### Aims And Objectives

1. To estimate the prevalence of major chronic diseases and disabilities among the elderly population.
2. To explore the relationship between demographic factors (e.g., age, gender, socioeconomic status) and the occurrence of geriatric morbidity.
3. To analyze prevalence of morbidity and multimorbidity and their impact on the older adults.
4. To provide evidence-based recommendations for improving geriatric care.

### Material And Methods

This is a cross-sectional observational study conducted as a part of electives in the department of Community Medicine at Medical College and Tertiary care Hospital, Udaipur, that provides specialized medical services to assess the prevalence of geriatric morbidity among individuals aged 60 years and above. Data was collected using a predesigned and pretested proforma. The study includes elderly individuals (aged 60 years and above) who are visitors to the admitted inpatients in the hospital and the people of nearby village.

**Sample size estimation-** the prevalence of geriatric population according to 2011 census is 8.6%<sup>9</sup> and the calculated sampling size is 121. Total 125 elderly populations were involved in this study. Simple random sampling technique was used to interviewing the focused population using our predesigned and pretested proforma after informed consent and necessary information. **Inclusion Criteria** includes 1. Elderly population aged 60 years and above. 2. Individuals who provide informed consent to participate in the study. **Exclusion Criteria** includes 1. Patients who decline participation or do not provide informed consent. 2. Elderly individuals with severe cognitive impairment that prevents them from understanding and consenting to the study. 3. Patients who are critically ill and unable to participate.

Collected information was analysed using MS Excel and SPSS software version were used to analyse the data. Percentages and confidence intervals were used to estimate prevalence.

### Results

In our study, most of our participants were young old i.e. 54.4% followed by middle old i.e. 28%. 54% participants were male and 46% were females.

The study population was majority Hindu (84.4%), with nearly half (48%) being illiterate. Only 7% were graduates or above. Most participants were farmers (30%) or housewives (24%), with smaller proportions being laborers (12%), businesspersons (8%), unemployed (14%), or retired (12%).

Marital status showed that 80% were married, while 20% were widowed. The majority (94%) lived in traditional three-generation families, with only 6% in nuclear families.

Regarding habits, 82% had never smoked, 6% were current smokers, and 12% were past smokers. Smokeless tobacco use was absent in 88% of participants, while 12% were current users. Alcohol consumption was low, with 94% abstaining and only 6% reporting current use. This profile reflects a rural population with low education levels, traditional living arrangements, and minimal exposure to lifestyle risk factors.

In our study most common morbidity was musculoskeletal problem (62.4%), oral health problem (52.8%), hypertension (49.6%) and ophthalmic problem (49.6%). Only 14.4% participants were having diabetes mellitus and 13.6% have no health related morbidity.

The table 4 shows a higher prevalence of multimorbidity (52.80%) compared to single morbidity (33.60%) among the elderly. Among males, 38.24% had single morbidity and 50.00% had multimorbidity. In females, 28.07% had single morbidity, while 56.14% had multimorbidity. This indicates that females tend to have a greater burden of multiple chronic conditions, aligning with studies linking higher multimorbidity to longer life expectancy in women.

### Discussion:-

This study examines the morbidity profile among the elderly population, focusing on age and sex distribution, prevalence of specific morbidities, and the occurrence of single and multimorbidity. The findings are compared with existing literature to identify significant patterns and differences.

**Age and Sex Distribution-** Our study showed that the majority of participants were aged between 60–69 years, with males (30%) more than females (24%) in this age group. A similar trend was observed in a study conducted in Uttarakhand, which also noted a higher proportion of males in the younger elderly cohort<sup>10</sup>. However, the higher representation of females in the >80 age group (14% compared to 4% of males) is consistent with national trends indicating greater longevity among females.<sup>11</sup>

**Prevalence of Specific Morbidities-** Musculoskeletal problems were the most prevalent health-related issue (62.4%), followed by hypertension (49.6%) and ophthalmic problems (49.6%). These findings are comparable to those from a study in North and central India, where musculoskeletal, ophthalmic and hypertension-related problems were predominant among the elderly.<sup>8, 12</sup> Gastrointestinal problems (29.6%) and respiratory issues (20%) were present at moderate levels, whereas central nervous system disorders (1.6%) and cardiovascular diseases (1.6%) were less frequently reported. This differs from studies conducted in urban areas where such conditions were reported at higher rates, likely due to dietary and lifestyle differences.

**Comparing Health-Related Morbidity among Study Subjects-** The sociodemographic profile of our study subjects revealed a high prevalence of illiteracy (48%) and joint family structures (94%), which are characteristic of traditional rural Indian settings. Notably, current smoking rates were low at 6%, and there was no reported current alcohol consumption (6%). This absence of significant behavioral risk factors may contribute to the observed lower prevalence of non-communicable diseases (NCDs) such as diabetes (14.4%) compared to national averages. For instance, a study conducted in rural Bihar reported a higher prevalence of hypertension and overweight individuals, suggesting that NCDs are becoming more common in rural areas.<sup>13</sup> The underreporting of oral health problems (52.8%) and ENT issues (10.4%) in our study could indicate potential under diagnosis in rural settings, possibly due to limited access to healthcare services or lack of awareness.

**Single and Multimorbidity-** Multimorbidity was more common (52.80%) than single morbidity (33.60%), with females (56.14%) having a lower prevalence than

males (50.00%). This aligns with findings from a study based on LASI data, which also reported higher multimorbidity rates among females due to longer life expectancy and increased healthcare-seeking behavior<sup>11</sup>. In contrast, a community-based multimorbidity study in rural elderly in India found a lower prevalence of multimorbidity (30%)<sup>14</sup>. This difference may stem from variations in study settings and the population variance.

Our study also revealed that males showed higher single morbidity (38.24%) than females (28.07%), which contrasts with national patterns. This could be due to better health-seeking behavior among males in this region.

### Limitations and Clinical Significance

The study has some limitations. The small sample size and cross-sectional design restrict the generalizability of the findings and preclude causal inferences. Moreover, self-reported data may introduce recall bias, and certain conditions might be under diagnosed due to limited access to diagnostic facilities.

Despite these limitations, the findings highlight the need for tailored healthcare services that address the specific morbidity patterns in elderly populations. Policymakers should prioritize integrated care models for managing multimorbidity, particularly for musculoskeletal (62.4%) and ophthalmic problems (49.6%). Additionally, health promotion initiatives focusing on behavioral risk factors like smoking and alcohol use can further improve outcomes for the elderly in rural settings.

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### Tables:-

**Table 1 - Distribution of study subject according to age and sex**

Age	Male		Female		Total	
	No.	%	No.	%	No.	%
60-69	38	30%	30	24%	68	54.4
70 - 79	25	20%	10	8%	35	28.0
>80	5	4%	17	14%	22	17.6
Total	68	54%	57	46%	125	100

**Table 2- Sociodemographic profile of study subject**

Sociodemographic Indicator	Frequency	Percentage
<b>Religion</b>		
Hindu	118	94.4%
Muslim	07	5.6%
<b>Education</b>		
Illiterate	60	48%
Primary	22	17%
Secondary	33	26%
Higher Secondary	2	2%
Graduate & Above	8	7%
<b>Occupation</b>		
Housewife	30	24%
Farmer	38	30%
Labour	15	12%

Business	10	8%
Unemployed	17	14%
Retired	15	12%
<b>Marital Status</b>		
Married	100	80%
Widow/Widower	25	20%
<b>Type of family</b>		
Nuclear family	7	6%
Joint / Three generation family	118	94%
<b>Smoking habit</b>		
Never	102	82%
current	8	6%
Past.	15	12%
<b>Smokeless Tobacco use</b>		
Never	110	88%
current	15	12%
<b>Alcohol consumption</b>		
Never	117	94%
Current	8	6%

**Table 3: Health-Related Morbidity among Study Subjects**

Health-Related Problem	Frequency	Percentage
No Health-Related Morbidity	17	13.6
Hypertension	62	49.6
Diabetes Mellitus	18	14.4
Cardiovascular Disease	02	1.6
Gastrointestinal Problems	37	29.6
Central Nervous System Problems	02	1.6
Ophthalmic Problems	62	49.6
Respiratory Problems	25	20
Oral Health Problems	66	52.8
Musculoskeletal Problems	78	62.4
ENT Problems	13	10.4

Skin Disease	20	16
Cancer	00	00

**Table 4- Assessment of single and Multimorbidity in Elderly**

Gender	No Morbidity		Single morbidity		Multimorbidity		Total
	No	%	No	%	No.	%	No.
Male	8	11.76	26	38.24	34	50.00	68
Female	9	15.79	16	28.07	32	56.14	57
Total	17	13.60	42	33.60	66	52.80	125