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An Assessment of Morbidity Pattern among Rural Geriatric Population of Field Practice Area of MMIMSR, Mullana, Ambala District, Haryana

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Abstract: ***Background: Ageing is an inevitable process accompanied by physical, psychological, and social challenges, increasing the risk of various diseases and treatment costs, often paid out-of-pocket. Rising life expectancy has expanded the elderly population, creating new demands on health systems, resources, and nutrition. Promoting healthy ageing requires maintaining functional ability through targeted healthcare, regular health assessments, and appropriate community support. Objectives: The study aims to examine the morbidity patterns among the geriatric population in rural field practice areas of Mullana, Ambala. Methodology: The study was conducted in rural field practice areas of Department of Community Medicine, MMIMSR, Mullana, district Ambala over a period of one year. Geriatric population aged 60 years and above were interviewed using a self-designed questionnaire with 2 sections which will comprise of sociodemographic details, self-reported pattern of morbidities of different systems. Written informed consent was obtained from each participant, and confidentiality was maintained. The data was analysed using SPSS version 28.0, and Chi-square test was used to establish associations among qualitative variables. Results: A total of 240 elderly individuals who met the study criteria were enrolled. 43.75% were from age group 60-65 years. There is high load of morbidities in rural (97%) population. The most common morbidity identified among them were cardiovascular conditions (45.4%) followed by diabetes. The study found significant association between morbidity and various factors like, age group, joint family, religion, education, gender. Conclusion: The study found a high prevalence of morbidities among the elderly in rural areas, with factors like age, family type, religion, and education significantly influencing health status. Rural elderly were identified as the most vulnerable, highlighting the need for targeted policies, improved access, and regular geriatric care to support their well-being and social inclusion.***

Keywords: Elderly, health-seeking behaviour, morbidity

1. Introduction

Ageing is an inevitable biological process with physical, psychological, and social implications raising health and medical concerns and increasing possibility of developing both communicable and non-communicable diseases. This incurs treatment costs which is often expensive, unbearable and at times out of pocket too.[1]

Globally, the percentage of the geriatric population has been rising unwaveringly, more than the population in all younger age groups. It has risen from 7% in 1950 to 11% in 2007 and is further expected to rise by 22% in 2050. Similarly, between 2017 and 2050, the number of elderly residing in developing countries is expected to increase from 652 million to 1.7 billion. [3]. In India, the population of elderly has risen from 76 million in 2001 to 100 million in 2011 [4] and is further expected to rise to 12.7% by the year 2025. [2]

As ageing progresses, there is significant decline in physical strength to smoothly carry out activities of daily living, with slowing of physiological functions, this coupled with financial constraints, extreme emotional dependency and social factors, limits the elderly from utilizing the health care services effectively. As age advances, this special age group faces myriad of health problems impacting different systems of the body. Chronic conditions like cardiovascular disease, respiratory disease, cancer, diabetes, osteoarthritis etc, are more frequent.[2]. Health status also directly impacts the standard of living, and hence increasing morbidities results in a decrease in the health-related quality of life.[6]

The goals for achieving healthy aging, relates to the adequate maintenance of functional ability by appropriately reaching the health care needs of the elderly. Health needs assessment depends upon the measurement of the health status and evaluation of the services that are required in a community to highlight the fundamental problems.[1]

As this age group is vulnerable and warrants special care right from housing structure to delivery of health services, every attempt should be made by care giver to offer elderly friendly services. Also policies supporting the elderly such as pensions, free health care facilities, and treatment of chronic diseases need to evolve at a greater pace in developing countries compared to the fast rise in the numbers of aging population .[7]This study will embrace detailed assessment of morbidity profile and resources to deliver health care to this special group. This study will further invite a scope for new studies, exploring possibilities of elderly friendly policies and programmes in Haryana.

2. Material and Methods

1) **Study area:** The study was conducted in the rural field practice areas of Department of Community Medicine,

Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana, district Ambala, Haryana.

2) **Study population**: The study embraced geriatric population aged 60 years and above, permanently residing in drainage area of Rural Health Centres Department of Community Medicine.
   a) **Inclusion Criteria:** Geriatric aged 60 years and above, consenting to participate in the study
   b) **Exclusion Criteria**:
      - Geriatric people who are terminally ill
      - Elderly who did not consent to participate in the study
      - Geriatric seeking psychiatric consultation and treatment for any kind of mental illness
3) **Study period:** This study was carried out over a period of one year i.e. December 2023 to December 2024

4) **Study design:** This is a Community Based Cross Sectional study.

5) **Sample size:** As per India Ageing Report published in United Nation Population Fund, prevalence of morbidity in elderly population is 64.8 %.8 Thus the sample size was calculated assuming a prevalence of 64.8 %
   The equation used for calculating sample size is as follows:
   $n= Z^2 P (1-P)/e^2$
   n = calculated sample size
   Z = level of confidence - 95% (1.96)
   • P = Prevalence of the disease
   • e = margin of error
   Taking margin of error as 10% the sample size came out to be 222, which was rounded off to 240. The study would include total 240 participants from rural field practice area.

6) **Sampling technique:** There are 6 sub centres in the rural setting. For true representation, study participants from all sub centres were included. Out of enlisted elderly, 40 from each sub centre will be included till completion of sample size of 240.

7) **Study strategy:** Personal face to face interviews was conducted. The purpose of the study was explained to the study participants in vernacular language prior to recording information via questionnaire and interviews conducted after seeking their consent in the local/vernacular language. The encounter with each participant were of duration 18 – 20 minutes.

8) **Study tools:** The data was collected using self designed semi structured questionnaire. For the purpose of study the following operational definitions were used.

9) **Geriatric-** Anyone above the age of 60 was defined as geriatric person by WHO.[2]

10) **Morbidity**– can be defined as any disease or perceived health ailment and/or informed by a clinician ahead of data collection time.[7]

The questionnaire will consist of two sections. **Section 1** includes socio- demographic details of the study participants.

Section 2 includes self reported pattern of morbidities of different systems including Hypertension, diabetes, thyroid disorders, morbidities related to musculoskeletal system, cardiovascular diseases, ocular diseases, gastrointestinal tract etc. This has also included various sub sections on self reported pattern of morbidities unique to males and females.

The data was entered in excel sheet and analysed using SPSS version 28.0 and Chi-square test was used to establish associations among qualitative variables.

Variables were expressed as proportions in percentages. A prior approval from the Institutional Ethics Committee was obtained. The study did not impose any financial burden on the patients and the purpose of the study was thoroughly explained in the language best understood/local language. Consent was obtained from each participant in their vernacular language. Anonymity and confidentiality for each patient was maintained throughout the study.

3. Results

Among the rural population, morbidity was present in 233 individuals (97.0%)**,** while only 7 individuals (2.9%) reported no morbidity, out of a total of 240 participants. This indicates a very high prevalence of morbidity in the rural group. **Table 1** describes that study sample predominantly comprises older women, mostly aged 60–65 years. Hindus form the majority, followed by Muslims, Sikhs, and a small Christian representation. Most participants are married, with low levels of formal education, and a high proportion are unemployed. Joint families are the most common household structure, though nuclear and three-generation families are also present. Socioeconomic status varies across all classes, with notable representation in the upper middle and middle groups. Overall, the population is characterized by advanced age, female predominance, limited education, unemployment, and diverse family and economic backgrounds.

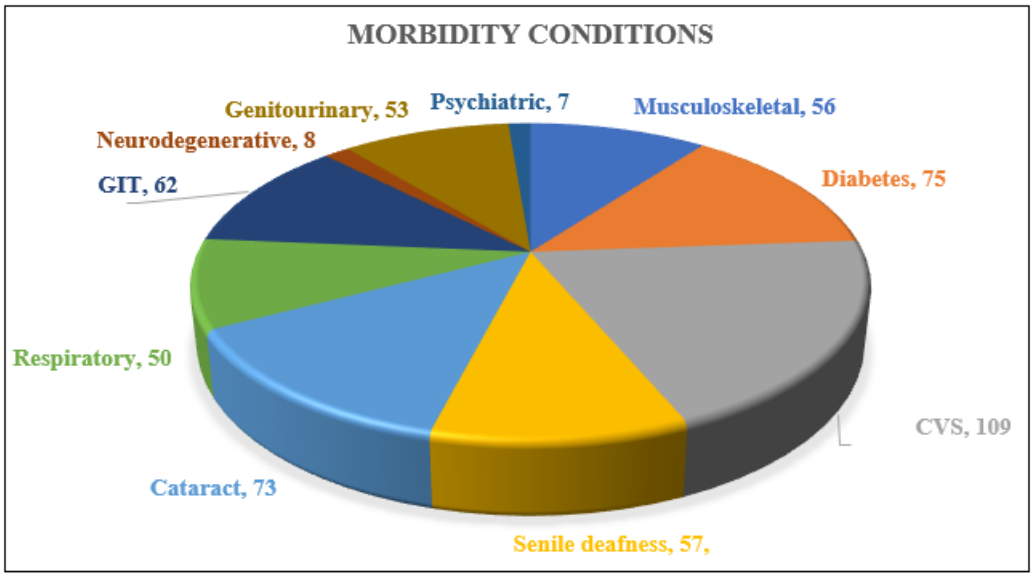

Figure 1: Distribution of study population according to their morbidity conditions

Table 1: Distribution of study population according to their socio-demographic characteristics

Sociodemographic Factors		Total (N=240)	Percentage
Gender	Female	161	67
	Male	79	32.9
Age (in years)	60-65	105	43.7
	66-70	70	29.1
	>71	65	27
Religion	Hindu	127	52.9
	Muslim	75	31.2
	Sikh	37	15.4
	Christian	1	0.4
Marital status	Married	160	66.6
	Not married	80	33.3
Education	Illiterate/Primary	169	70.4
	Secondary	60	25
	Graduate/ Postgraduates	11	4.5
Occupation	Employed	97	40.4
	Unemployed	143	59.5
Type of family	Joint	169	70.4
	Nuclear	30	12.5
	Three generation	41	17
Socioeconomic status	Upper class	36	15
	Upper middle class	73	30.4
	Middle class	59	24.5
	Lower middle class	34	14.1
	Lower class	38	15.8

Table 2: Association between various sociodemographic variables and morbidity patterns of elderly:

Sociodemographic Factors		Morbidity present		P-value
		Yes	No	
Gender	Female	157	4	0.53
	Male	73	3	
Age (in years)	60-65	102	3	0.545
	66-70	69	1	
	>71	62	3	
Marital status	Married	153	6	0.269
	Not married	80	1	
Education	Illiterate/ Primary	166	3	0.204
	Secondary	57	3	
	Graduate/ Postgraduates	10	1	
Occupation	Employed	93	6	0.015*
	Unemployed	140	1	
Type of family	Joint	165	4	0.426
	Nuclear	28	2	
	Three generation	40	1	

***P< 0.05 statistically significant**

Table 2 shows the analysis of sociodemographic factors in relation to morbidity among the elderly shows no significant association with gender, age, marital status, education, or type of family. Morbidity was prevalent across both males and females, different age groups, marital statuses, and educational levels without notable variation. However, occupation demonstrated a statistically significant association (p=0.015), with morbidity being higher among the employed compared to the unemployed. Overall, employment status emerged as the only factor significantly linked to morbidity in this population.

4. Discussion

This was a community based cross-sectional study, which was done with an aim to assess the morbidity pattern, among geriatric population of rural field practice area of MMIMSR, Mullana, Ambala. The study participant were taken from catchment area of RHTC Adhoya. In this study, elderly (>60 years) were taken, who were consenting to participate in the study. Mean age of study population was 67.56 ± 6.16 years. Similar results were seen in a study by **Sharma et al** where the mean age of the study sample was 69.01 years, with ages ranging from 60 to 90 years.23 As per study done by **Verma et al** in Allahabad, the mean age of the elderly was 68.96 years (SD ±7.48) in rural areas.[8]

The age-wise distribution shows a declining trend with increasing age in rural populations, with the highest representation in the 60–65 age group and the lowest in those over 80 years. Similar results were seen by **Soren, et al** in their study done in Ranchi, Jharkhand where the majority of

participants (71.8%) were aged 60–69 years, followed by 20.4% in the 70–79 age group, and 7.8% aged over 80.[1] Similar results were seen by **Usha et al** in a study done in Uttarakhand where maximum number of elderlies belonged to age group 60 70 years (76.0%).[3] Similar result was found by **Sharma et al** in their study on morbidity pattern and health seeking behaviour of north Indian elderly where maximum participants were from age group of 60- 69 years (60.5%), 30% in 70-79 years age group followed by 9.5% in aged above 80, same trend was seen in both rural and urban population.[9]

In rural areas, most individuals have low education levels, with 92 illiterate and few reaching graduation (11) or higher (0 postgraduates). These results were consistent with the study by **Sharma et al** where they found 130 (65%) were illiterate and 69 (34.5%) were literate in rural setting.[9] In a study conducted by **Gupta E et al** approximately two-thirds of the study subjects (68%) were illiterate, while about one-fifth (15%) had received primary education.[10]

This study shows that joint families are most common in rural areas. Rural areas have more joint (169) and three-generation (41) families. As per study done by **Sahu et al**, among the population interviewed, the joint family system was the most prevalent (88.8%), followed by the nuclear family (8.3%).[11] While in a study done by **Shraddha et al** nuclear family was found in 48.9% of the elderly followed by three generation 34.8% and joint family 16.3%.[13]

In our study out of 240 participants, 95.8% were having chronic morbidity with in rural populations. Rural populations have a higher prevalence of age-related conditions like senile deafness (23.7%) and cataracts (30.4%). Respiratory, gastrointestinal, neurodegenerative, and psychiatric conditions show similar and relatively low prevalence. Whereas in a study conducted in Lucknow by **Srivastava MR et al**, musculoskeletal problems were reported by 65.7% of males and 75.4% of females overall, with higher rates in rural areas. Eye problems affected 58.7% of males and 70.6% of females, again more common in rural settings. Respiratory issues were more prevalent among males (36.2%) than females (24.1%), particularly in rural areas. Gastrointestinal problems were reported by around one-third of both males (35.7%) and females (36.9%), with similar rates across rural and urban populations.[12] Similar results were seen in the study done by **Sahu et al** in which the most prevalent health issue was musculoskeletal disorders, affecting 68.6% of individuals. Circulatory system diseases were also common (57.1%), followed by eye and adnexa conditions (47.3%). Additionally, 25.2% experienced endocrine, nutritional, and metabolic disorders, 21.3% had respiratory illnesses, 16.1% were affected by skin and subcutaneous tissue diseases, and only 4.5% reported nervous system disorders.[11]

The findings are derived from a specific population within a defined geographic area and therefore may not be generalizable. A larger sample size could have provided more comprehensive insights, but this was constrained by time limitations. The presence of family members during interviews and examinations might have influenced participants' responses. Additionally, no laboratory investigations were carried out, and the study may have been affected by recall bias.

5. Conclusion

The study highlights that most participants were elderly, largely women, with limited educational qualifications, high levels of unemployment, and predominantly living in joint family households across different socioeconomic strata. The morbidity pattern showed a considerable burden of chronic non-communicable diseases, with cardiovascular disorders, diabetes, and cataract being most common, alongside other age-related issues such as musculoskeletal disorders, senile deafness, and gastrointestinal problems. Neurodegenerative and psychiatric conditions were less frequent but still noteworthy. Overall, the results point to the combined challenges of socioeconomic vulnerability and a heavy disease load among the elderly, emphasizing the need for targeted health care strategies and supportive social measures for this group. In summary, gender, age, marital status, education, and family type were not significantly associated with morbidity among the elderly. The only notable finding was a significant link with occupation, with employed individuals showing higher morbidity than the unemployed.

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