

## A Descriptive Cross-Sectional Study of Health Profile and Pattern of Disease regarding the Elderly in Rural Areas of Uttar Pradesh

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### ARTICLE INFO

#### Original Article

Received: 25 May 2023

Accepted: 18 Sep 2023



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### ABSTRACT

**Background:** Morbidity pattern shows the burden of the disease and time trends, highlighting demographic differences in disease burden. It also demonstrates the extent and nature of the disease load in the community, and thus, assists in establishment of the priorities for monitoring and evaluating disease control activities, allocating the resources and monitoring the trends for the effect of intervention<sup>5</sup>. Hence, this study aims to determine the prevalence of common morbidities in the elderly age group.

**Methods:** This was a descriptive and cross-sectional study conducted on the 318 elderly subjects in rural areas. Of 60 or above. Random sampling was done to select the villages. A house to house survey was conducted in every selected village, and eligible subjects were interviewed till the required sample size was reached. *The study tools were a pre-tested, pre-validated questionnaire* Variables included socio- demographic factors such as age, sex, religion, marital status, education, occupation, type of family, family income, etc.

**Results:** Female preponderance was seen in the study subjects. The majorities of the subjects was between 60-70 and were suffering from either one or two morbidities. 70 % had a positive family history. There were behavioral risk factors (addiction/ habit) in 35% of the participants, and the most common problem was smoking. The most common problems were generalized muscular weakness (63%) followed by gastrointestinal (GI) problems. Around 5% of the study subjects suffered from diabetes and cardiovascular diseases (CVD).

**Conclusion:** Regarding the socio-demographic characteristics, behavioral factors and morbidities, the present study is comparable to many other studies conducted in India. The burden of different diseases or the morbidity pattern is different in different parts of the country.

**Keywords:** Morbidity, Elderly, Burden, prevalence

#### How to cite this paper:

Chopra D, Jauhari N, Mishra S. A Descriptive Cross-Sectional Study of Health Profile and Pattern of Disease regarding the Elderly in Rural Areas of Uttar Pradesh. J Community Health Research 2023; 12(2): 256-262.

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## Introduction

Aging is a process which starts from birth and ends with death. It is a continuous, lifelong, irreversible, and inevitable process. It is defined as a progressive and generalized impairment of functioning, leading to the loss of adaptive response to stress and growing risk of age related diseases; the result is progressive increase in age-specific mortality (1). Worldwide, age distribution has shifted towards older population due to increased life span of individuals. India is also showing a similar trend, with the increasing size of the elderly population. Currently, the elderly constitute 8% of India's population (2).

Health status and its outcomes in individuals also depends on certain behavioral risk factors such as smoking, alcohol consumption, poor nutrition, physical inactivity, etc (3). Other factors like heredity, environment, and personal characteristics like socio-economic status, gender, etc, also influence the elderly's health. Rapid urbanization, more inclination towards nuclear families, and population movement make caring for the elderly a social problem in India (4). Apart from other social life events like retirement and relocation, death of friends and partners also influence the elderly's health (2, 3). The rapid growth of the elderly population presents a new challenge to health system. Hence, to improve the overall quality of life, the burden of disease for the elderly should be reduced.

Formulating health policies requires health statistics for evidence-based formulation of policies and strategies. Health indicators have an influence on policy planning and resource allocation. Various morbidity and mortality indicators such as birth rate, death rate, life expectancy at birth, and morbidity/mortality patterns are vital measures of the population's health; therefore, various diseases which affect the population's health need to be identified. Morbidity pattern indicates the burden of the disease and time trends, highlighting demographic differences in disease burden by age, sex, ethnic status, etc. The pattern also shows the extent and nature of the disease burden in the community, and thus, assists in establishing

priorities for monitoring and evaluating disease control activities, allocating resources, and monitoring the trends for the effect of intervention (5). There has been limited research on the morbidity pattern in community in the state of Uttar Pradesh. Hence, this study aims to determine the prevalence of common morbidities in the elderly age group.

## Methods

This was a descriptive and cross-sectional study conducted in rural areas under the field practice area of Rural Health Training center of a tertiary care Institute in Lucknow. The study units eligible for enrolment under the study were elderly population (60 or above). The study was conducted between September, 2019 to January, 2020. A total of 318 eligible study subjects were included in the study. The inclusion criteria were willingness to participate, and only one member from a family could be enrolled. Those who were not willing to participate, were very sick, or were not able to speak/ give interview, were excluded from the study. The survey team collected data by interviewing eligible study subjects during house to house visit; data were recorded on a pre-tested, pre-designed, and pre-structured questionnaire. Out of a total 18 villages, 9 villages were selected randomly. The sample size of 318 people was divided among these 9 villages (35-36 participants from each village). Subjects were interviewed till the required sample size was reached. A similar process was carried out in all the 9 selected villages.

### *Study tools*

The study tool was a proforma-based questionnaire which was pre-tested and pre-validated. The questionnaire consisted of two sections, first section included socio-demographic details, and the second section was about clinical history and examination. If available, previous health records were also taken into account. Variables included socio-demographic factors such as age, sex, religion, marital status, education, occupation, type of family, family income.

**Data analysis**

Data were analyzed through SPSS 19. and descriptive statistics were used to explain the results. Ethical approval was obtained from the Institutional Ethics Committee, and the subjects were assured of the confidentiality of their information. Health education regarding disease prevention, control and management, and availability of relevant health services was provided.

**Results**

Table 1 shows that among 318 participants, the

majority (53%) were between 60-70 ,followed by 35% between 70-80. A slight preponderance of females was observed, and the majority were Hindu (85%). The proportion of illiterate population was only 17 % but among the literate, only 5% were graduated or had higher education degrees.

75% of the participants were married, while 57% were living in a joint family, and 43% had a nuclear family. More than 90% of the subjects belonged to lower-middle to lower socio-economic status as per modified BG Prasad Classification.<sup>6</sup>

**Table 1.** Showing the socio-demographic characteristics of the study subjects (N = 318)

Characteristics	Number	Percent
<b>Age group (years)</b>		
60- 70	169	53%
70- 80	111	35%
80- 90	35	11%
90 - 100	3	1%
<b>Sex</b>		
Male	153	48%
Female	165	52%
<b>Religion</b>		
Hindu	270	85%
Muslim	41	13%
Others	7	2%
<b>Education</b>		
Illiterate	54	17%
Below primary school degree	89	28%
Primary school degree	57	18%
Junior-high degree	50	16%
Senior-high degree	28	9%
HS	22	7%
Graduate	18	5%
<b>Occupation</b>		
Housewife	136	43%
Farmer	35	11%
Laborer	16	5%
Businessperson	63	20%
Employed	20	6%
Retired	48	15%
<b>Marital status</b>		
Married	241	76%
Unmarried	10	3%
Widow	58	18%
Widower	9	3%
<b>Type of family</b>		
Nuclear	136	43%
Joint	182	57%

Characteristics	Number	Percent
<b>Socio- economic status</b>		
Lower	111	35%
Upper lower	95	30%
Lower middle	73	23%
Upper middle	35	11%
Upper	4	1%

Table 2 observed that 75% of the participants were suffering from one or two morbidities while approximately one-fourth of the subjects had 3 or more problems. 60% of the participants knew about the family history of chronic diseases, and 70% had some sort of positive family history.

Common disorders found in family history were eye problems, hypertension, and diabetes. Behavioral risk factors (addiction/ habit) were present in approximately one-third of study subjects, and smoking was the most common problem.

**Table 2.** The rate of morbidities and risk factors in study subjects

Morbidities (N = 318)	Number	Percent
One morbidity	115	36%
Two morbidities	128	40%
Three morbidities	56	18%
More than three morbidities	19	6%
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Being aware of the family history of NCD (N = 318)	190	60%
Positive family history among those who are aware, (N = 190)	133	70%
Morbidities regarding positive family history (N = 133)	Number	Percent
Eye problems	18	14%
Hypertension	13	10%
Diabetes	5	4%
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<b>Behavioural risk factors (N = 318)</b>	<b>Number</b>	<b>Percent</b>
Any kind of addiction/ habit	111	35%
Smoking (N = 111)	39	35%
Smokeless tobacco (N = 111)	17	15%
Alcohol (N = 111)	14	13%

Table 3 shows that the most common ailment affecting the elderly were generalized muscular weakness (63%), followed by gastrointestinal(GI) problems (56%). 45 % and 425% of the study subjects were suffering from Musculoskeletal problems (low back ache, joint pain, osteoarthritis)

and anemia respectively. Ophthalmological (vision) problems, respiratory problems, and dermatological disease were observed in 36 %, 28% and 23% respectively of the study subjects, cardiovascular diseases 4% were seen. Diabetes was observed in around 5% of study subjects.

**Table 3.** Morbid conditions in study subjects

Morbidity condition	Number	Percent
Generalized weakness	200	63%
G I problems	179	56%
Musculoskeletal/ joint problems	143	45%
Anemia (clinical)	133	42%
Eye related problems (visual problems/ impaired vision)	115	36%
Respiratory problems	89	28%
Skin problems	74	23%
Hypertension	42	13%
Dental problems	34	11%
Gynecological problems * (only female subjects considered)	14	8%
Central nervous system/epilepsy	26	8%
Ear, nose, throat/hearing loss/senile deafness/ impaired hearing	19	6%
Urinary disturbance	20	6%
Diabetes Type II	16	5%
Cardiovascular problems/ Ischemic Heart Disease	13	4%
Other problems such as malignancies/ insomnia/ depression	15	5%

**Discussion**

The majority (53%) of the participants were between 60-70 , followed by 70-80 age group (35%). The findings of the current research were supported by other studies (7-11). This study found the preponderance of female subjects compared to males, in accordance with other studies (7, 9, 11-15). However, some studies found more males participating in the study. This project was conducted during noon hours, implying that the male in the household could have been out for work to earn a living (8, 10). The majority of the subjects were Hindu, and the findings were similar to other studies. In one study, the majority of the populations were muslims (8, 9). Although the level of education was low, most of the participants were literate (83%) and very few (only 5%) were graduate or above. The current study reported a low level of illiteracy among the population in comparison to the other studies (7-9, 13, 15). Female subjects were mainly housewives , while males were mainly retired , which was in line with a study conducted in Assam.<sup>14</sup> Approximately, 75% of the cases were currently living with their spouse, and a very small percentage was unmarried or widower. Around 57 % had a joint family, and more than 85% of the subjects belonged to lower-middle

to lower socio-economic status. Similar findings were reported by other studies as well (9, 13, 15).

60% of study participants were aware about their family history of disease among whom, a 70% positive family history was observed. The eye (vision) related problems were reported to be the most common in family history, followed by diseases like hypertension and diabetes (10% and 4% respectively). Higher prevalence of hypertension and diabetes were reported by Srinivas et al. (13).The difference in findings could be due to the fact that this study was limited to the rural areas with a comparatively less prevalence rate of non-communicable diseases. Smoking (35%) was the most common addiction/ habit among the subjects, similar to the findings reported in other studies (12, 13).

According to the current study, 75% of the participants were suffering from one or two morbidities, similar to findings in other studies (11, 13, 14). The generalized muscular weakness was reported in 63% of the subjects, followed by GI problems. Various studies reported different rates of morbidities (7, 9, 13, 15). The current study discovered that the prevalence of anemia was about 40% ,which was in concordance with the research reported from other parts of India (8, 11, 14-16).

The prevalence of musculoskeletal problems (low back pain, joint pain, osteoarthritis) in this study was around 45%, which was quite similar to Ghosh A et al.'s research (2015). However, higher or lower prevalence rate was reported in other studies (7, 9, 11, 13, 15). Eye (vision)- related problems were found in one-third of the cases, and the same was reported by many studies. Some studies, observed a higher prevalence of impaired vision while some other reported a lower prevalence of impaired vision, compared with the current study (5, 9-11, 13, 15).

The prevalence of hypertension and diabetes were about 13% and 5% respectively in this research. This is while other studies predominantly reported a higher prevalence (even upto 52%) of hypertension (7, 10-12, 15). A hospital-based study reported the prevalence of diabetes to be higher than hypertension.<sup>5</sup> Respiratory problems were seen in 28% of the study subjects, which was similar to one study but not in concurrence with other studies (7, 9, 13, 15). A similar trend was observed for neurological and urinary problems, and mental health and gynecological conditions (7, 9, 15-17). Cardiovascular disease was observed in 4% of the cases, which was lower than the findings by other studies (9, 11, 13, 15). Thus, morbidity pattern in the elderly was different in different parts of the country.

## Conclusion

The prevalence of the diseases in elderly population are different in different parts of India, which makes it imperative for a larger national level research to find out the actual morbidity burden.

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## Acknowledgments

The authors would like to thank the faculties of Community Medicine department for their support. They are also grateful to all the staff for making arrangements to conduct the study. This research has been approved by the Institutional Ethics Committee, and has followed the highest possible standards of the code of ethics.

## Conflict of interest

The authors declared no conflict of interest.

## Funding

None

## Ethical considerations

The study followed all the ethical principles of research and followed voluntary participation, informed consent, anonymity, confidentiality, potential for harm, and results communication.

## Code of Ethics

The study has been approved by the Institutional Ethics Committee and has followed the highest possible standards of code of ethics

## Authors' contributions

S. M, participated in the writing and designing of the study and drafted the manuscript; D. C, was involved in writing and designing of the study, performed the statistical analysis, and finalized the manuscript.

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