

# Prevalence of chronic morbidities and healthcare seeking behavior among urban community dwelling elderly population residing in Kalyani Municipality area of West Bengal, India

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## ABSTRACT

**Introduction:** Demographic transition has resulted in higher proportion of elderly population in every community. The pattern of chronic morbidity along with healthcare seeking behavior and factors associated with it are important for implementation of national health policies targeted toward elderly population. **Methods:** A community based cross-sectional study was done including 457 urban dwelling elderly population of Kalyani Municipality area of West Bengal. Sociodemographic details, profile of chronic morbidities, and healthcare seeking behavior for chronic morbidities were studied using a pretested semi structured questionnaire. **Results:** The average education and financial independence were high among study participants. The prevalence of chronic morbidities was 82.3% and hypertension was the most common morbidity in both male and female. Around half of the individuals with chronic morbidities (57.7%) sought healthcare advice at least once in last 6 months. Most of the study participants preferred private healthcare setup and allopathic system of medicine. Females have been found to have higher treatment seeking behavior than males in logistic regression. **Conclusion:** We found hypertension and diabetes were more prevalent in the study population. Higher financial independence and education among study participants might have influenced the healthcare seeking behavior, which was mainly from private setup. Implementation of national health policies for elderly has to be accelerated in acceptable ways to promote health among elderly.

**Keywords:** Chronic morbidities, elderly, treatment seeking behavior

## Introduction

Improved hygiene, healthier life style, adequate food, and better healthcare facilities have significantly increased human life span. Subsequently, the proportion of elderly population (age  $\geq 60$  years) has increased considerably across the globe. It is estimated that, by 2050, the total elderly population

in the world will be around 2 billion (22% of total population), up from 900 million (12% of total population) in 2015.<sup>[1]</sup> More importantly, 80% of global elderly population will live in low- and middle-income countries.<sup>[1]</sup> In India, by the year 2025, more than 11% of total population will be elderly up from 8% in 2011.<sup>[2]</sup>

Aging is associated with accumulation of molecular and cellular damage leading to gradual decrease in normal functional reserve of body, which leads to various chronic morbidities.<sup>[3]</sup> Chronic morbidities disrupt normal daily activities, reduce quality of life and results in physical disabilities.<sup>[4]</sup> The unprecedented

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and rapid rise in the number of elderly population have therefore far-reaching consequences on health care system and economy, especially in a developing country like India.<sup>[5]</sup> Several community-based studies had reported a considerable high burden of chronic morbidities among elderly population in India; however, in most of these studies, the chosen study population belonged to low literacy and poor socioeconomic group residing in rural areas or urban slums.<sup>[6,7]</sup> There is paucity of data on prevalence of chronic morbidities among elderly population residing in urban areas, belonging higher socioeconomic class and their healthcare-seeking pattern. It is also important to mention here that poverty or lower socioeconomic condition itself is an independent risk factor for various chronic morbidities as reported in earlier study, thereby making it difficult to interpret the effect of aging on chronic morbidities from the published literature.<sup>[4]</sup>

Along with the increase in number of elderly population, there is also a considerable change in family structures especially in urban areas. The traditional joint family structure in India, which had been proved to provide social and economic security particularly to the elderly population for decades, has changed to nuclear families, making the elderly population more vulnerable especially in terms of health. In addition to that the national health program for the elderly is yet to be implemented properly in the country. These have resulted in a highly challenging environment for the elderly to lead a secure, dignified and productive life.

Health-seeking behavior (HSB) is defined as “any activity undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy”.<sup>[8]</sup> The healthcare-seeking behavior is the result of complex and dynamic interaction among multiple factors like social, economic, cultural beliefs of a community; level of education and awareness; income and power of expenditure; accessibility and perceived quality of healthcare delivery system, etc.

In this study, we proposed to assess the prevalence of chronic morbidities and factors associated with healthcare-seeking behavior for those morbidities among elderly residing in an urban municipality area of Kalyani, Nadia, West Bengal, India.

## Methodology

### Study setting

This community-based cross-sectional study was done in two (A and B) blocks of Kalyani Municipality area, district Nadia, West Bengal, India. Kalyani is one of the oldest planned cities of India and is located 50 km away from Kolkata and have an area of 29.1 km<sup>2</sup>. The municipality area is divided into 21 ward/block areas and caters a population of around 100,000. There are two tertiary care hospitals, two urban primary health centers, 10 subcentres and more than 50 private dispensaries or hospitals.

### Study participants and sample selection

Males and females aged  $\geq 60$  years were defined as elderly. All elderly residing in the study area for at least past 1 year were the study population. Elderly with problem in comprehension, difficulty in communication and could not be contacted even after two home visits were excluded from the study. As no study on chronic morbidities were available in this region of the country, we calculated the required sample size assuming the prevalence of chronic morbidities among elderly as 50% with relative precision of 10% and alpha value of 0.05. The required sample size was 400. Considering nonresponse rate of 20%, the minimum calculated sample size was 480.

List of households were obtained from Kalyani Municipality. There were a total of 22,100 household/families (including flats) in the study area and all having a unique identification number provided by the Municipality. This served as sampling frame. Study households were selected through simple random sampling using computer-generated sequence from sampling frame. In case of nonavailability of any elderly person in the selected household/family, next house was approached. If more than one elderly member were present in the same household, the “Kish grid” technique was applied to select the study participant.

### Data collection

The study was conducted in the month of April 2021. A pretested semistructured questionnaire was used to collect data. Information was obtained from study participants regarding the sociodemographic characteristics, morbidity profile of the preceding 6 months (October 2020-March 2021), financial dependence, preferred health setup for seeking healthcare, reason for such preference, preferred system of medicine, gross out of pocket expenditure (OOP) incurred by them, bearer of OOP, and availability of health insurance.

### Ethical approval

Ethical approval was obtained from Institute Ethics Committee of AIIMS Bhubaneswar, which is also the IEC of AIIMS Kalyani (Ref. No: T/IM-NF/Kalyani/20/09).

### Data management and statistical analysis

Data was collected using Epicollect5 app. The collected data were extracted in Microsoft Excel 2013 and analyzed in STATA 13 (StataCorp. 2013. *Stata Statistical Software: Release 13*. College Station, TX: StataCorp LP). Categorical data was presented as percentages (%). Normally, distributed data was presented as means and standard deviation or 95% confidence interval (CI). Bi-variate analysis (Chi-squared test) was done for studying the association between selected sociodemographic and other variables. All the variables were included in multivariate logistic regression analysis for determining significant association between HSB and selected factors. *P* value < 0.05 was taken as statistically significant.

## Results

### Descriptive details of the study participants

House-to-house visits were made to the randomly selected 480 elderly individuals. Of these, 15 refused to participate in the study, four elderly individuals could not be contacted even after two house visits; and four participants were too ill to participate in the study. The remaining 457 participants were included in the study with a response rate of 95.2%.

A total of 219 (47.9%) females and 238 (52.1%) males were included in the study. The mean (SD) age of the study participants was 68.9 (7.3) years, 69.7 (7.8) years for males and 68.1 (6.8) years for females. Majority of study participants had education level of graduation and above (male vs female: 87.4% vs 55.2%), were currently married (male vs female: 71.8% vs 56.2%), belonged to general caste (male vs female: 77.3% vs 76.7%), and staying with family (male vs female: 87.8% vs 89.5%). Majority were financially independent (male vs female: 95.0% vs 79.9%) and had per-capita family income of more than Rs. 7533/- (male vs female: 81.1% vs 94.5%). Other sociodemographic details are given in Table 1.

A total of 376 (82.3%) study participants had reported to be suffering from at least one chronic morbidity for the last 1 year; out of them, 88.2% were males and 75.8% were females ( $n = 376$ ). Hypertension was the most common

morbidity among both in males (60.0%) and females (75.3%) followed by visual impairment/cataract in females (33.7%) and diabetes in males (28.1%). Other details of chronic morbidities are given in Table 2.

Out of all participants who were suffering from at least one chronic morbidity ( $n = 376$ ), 57.7% sought healthcare advice for at least once in last 6 months; among them, 52.9% were male and 63.9% were female. Out of those who did not seek healthcare advice 47.1% were male and 36.1% were female. Other details of HSB are given in Table 3.

On bivariate and multivariate analysis, male sex had been found to have almost 40% lesser healthcare-seeking behavior than female sex [OR: 0.57 (95%CI: 0.35–0.93)]. All other factors were found not to be significantly associated with healthcare-seeking behavior ( $P \geq 0.05$ ), as described in Table 4.

## Discussion

This community-based cross-sectional study was conducted among urban elderly community of Kalyani Municipality area of West Bengal. We found a very high response rate (95.2%) among study population. The sociodemographic characteristics of the study participants were to some extent different from the studies conducted earlier in this age group in Indian settings especially in terms of education and socioeconomic status.<sup>[6,9–11]</sup> The education level of most of the participants were “graduation

**Table 1: Distribution of study participants as per selected sociodemographic details**

Category	Subcategory n %	Male (n=238) n %	Female (n=219) n %	Total (n=457)
Age (in years)	60-69	132 (55.5)	139 (63.5)	271 (59.3)
	70-79	70 (29.4)	62 (28.3)	132 (28.9)
	> 80	36 (15.1)	18 (8.2)	54 (11.8)
Education	Graduation and above	208 (87.4)	121 (55.2)	329 (72.0)
	Up to 12 <sup>th</sup> Standard	27 (11.3)	68 (31.1)	95 (27.8)
	Up to 8 <sup>th</sup> Standard	03 (1.3)	30 (13.7)	33 (7.2)
Marital status	Never married	22 (9.2)	19 (8.7)	41 (9.0)
	Married	171 (71.8)	123 (56.2)	294 (64.3)
	Divorced/separated/widowed	45 (19.0)	77 (35.1)	122 (26.7)
Caste	General	184 (77.3)	168 (76.7)	352 (77.0)
	SC/ST	42 (17.7)	35 (16.0)	77 (16.9)
	OBC	12 (5.0)	16 (7.3)	28 (6.1)
Type of family	Staying alone/caretaker	29 (12.2)	23 (10.5)	52 (11.4)
	With family	209 (87.8)	196 (89.5)	405 (88.6)
Financial dependence	No	226 (95.0)	175 (79.9)	401 (87.7)
	Yes	12 (5.0)	44 (20.1)	56 (12.3)
Socioeconomic status (BG Prasad scale) (in Rs.)	>7533	193 (81.1)	207 (94.5)	400 (87.5)
	3766-7532	27 (11.3)	9 (4.1)	36 (7.9)
	2260-3765	12 (5.0)	2 (0.9)	14 (3.1)
	1130-2259	4 (1.6)	1 (0.5)	5 (1.1)
	≤ 1129	2 (0.8)	0 (0.0)	2 (0.4)
Health insurance	No health insurance	85 (35.7)	110 (50.2)	195 (42.7)
	Yes			
	Government	117 (49.2)	89 (40.6)	206 (45.1)
	Private	35 (14.7)	18 (8.2)	53 (11.6)
	Both	1 (0.4)	2 (0.9)	3 (0.6)

and above” (72.0%), and they mostly belonged to the “upper class” as per BG Prasad socioeconomic scale (87.5%), whereas in the earlier studies, the participants were mostly from poor socioeconomic status and had lower education groups.

We found that eight out of ten elderly individuals were suffering from one or more chronic morbidities (82.3%) in our study. The morbidity burden was similar to the studies conducted among elderly residing in urban areas of North-East and North India, where the reported burden of chronic morbidities was 78.4 and 80%, respectively.<sup>6,9</sup> However, a study done in rural and urban areas of Uttarakhand by Usha P *et al.*<sup>10</sup> had reported higher prevalence of chronic morbidities (97.5%). We surmise that the questionnaire used by Usha P *et al.* might be the reason for such discordance. In that study, chronic morbidities had been described as “general and unspecified.” “Gastro intestinal morbidities and “psychological morbidities” constituted higher proportion of the prevalence reported. Another multicentric study by Mini

GK *et al.*<sup>11</sup> conducted in seven Indian states reported 63.0% of prevalence of chronic morbidities among elderly population. “Has a doctor or nurse ever told you to have the disease?” was the question asked to assess chronic disease morbidity in the study by Mini GK *et al.* Accessibility, affordability, recall bias, and difference in preference of the system of medicine in different communities might be the reasons for underestimation of the actual prevalence in that study.

Hypertension was found to be the most common chronic morbidity in both males and females (66.8%) followed by diabetes (29.3%). Unlike our study, other studies reported musculoskeletal disorders as most common morbidities in this age group,<sup>9,10</sup> In our study, only 11.2% population reported to have musculoskeletal disorder. This may be explained by a study report of Vukovic D *et al.*<sup>12</sup> which had reported that hypertension was most common morbidity among wealthier population and musculoskeletal problems were more common among poorer population. Similar to our study findings, Mini GK *et al.*<sup>11</sup> reported that hypertension, cataract, and diabetes were three most common chronic morbidities among elderly.

Around 58% study participants sought healthcare advice during the study period; the healthcare seeking was higher among females (63.9%) than males (52.9%). The observed healthcare-seeking behavior in our study was lower than the study done by Barua K *et al.*<sup>6</sup> in Assam, which reported that 83.7% of elderly sought health advice and treatment for their morbidities. Although it has been found that people with high opportunity and higher social background were more serious about treatment, the same study also found that the slum and nonslum people did not differ significantly in their healthcare-seeking behavior.<sup>13</sup>

In the present study, most of the study participants preferred the allopathic system of medicine (94.9%) and private health setup (82.9%) and reason for preferring private health setup was self-preference (65%) and accessibility (32.7%). It has been

**Table 2: Distribution of study participants as per self-reported morbidities (n=376)**

Morbidities*	Female n (%) (n=166)	Male n (%) (n=210)	Total n (%) (n=376)
Hypertension	125 (75.3)	126 (60.0)	251 (66.8)
Diabetes	51 (30.7)	59 (28.1)	110 (29.3)
Visual impairment/cataract	56 (33.7)	36 (17.1)	92 (24.5)
Thyroid dysfunction	29 (17.5)	23 (11.0)	52 (13.8)
Heart disease	9 (5.4)	40 (19.0)	49 (13.0)
Osteoarthritis	34 (20.5)	8 (3.8)	42 (11.2)
COPD	8 (4.8)	17 (8.1)	25 (6.6)
Chronic pain	12 (7.2)	9 (4.3)	21 (5.6)
Chronic kidney disease	2 (1.2)	6 (2.9)	8 (2.1)
Hemorrhoids	4 (2.4)	1 (0.5)	5 (1.3)
Acid peptic disease	3 (1.8)	1 (0.5)	4 (1.1)
Irritable bowel syndrome	1 (0.6)	2 (1.0)	3 (0.8)
Stroke	1 (0.6)	2 (1.0)	3 (0.8)
Cancer	1 (0.6)	0 (0.0)	1 (0.3)

\*Multiple responses possible

**Table 3: Pattern of healthcare seeking behavior among study participants who had one or more chronic morbidity (n=217)**

Parameter	Responses	Male n (%) (n=111)	Female n (%) (n=106)	Total n (%) (n=217)
Preferred health setup*	Government	11 (9.9)	10 (9.4)	21 (9.7)
	Private	94 (84.7)	86 (81.1)	180 (82.9)
	Over the counter	01 (0.9)	02 (1.9)	03 (1.4)
	Informal treatment source	06 (5.4)	11 (10.4)	17 (7.8)
Reason for preference*	Self-preference	84 (75.7)	57 (59.3)	141 (65.0)
	Accessibility	28 (25.2)	43 (40.6)	71 (32.7)
	Affordability	7 (6.3)	6 (5.7)	13 (6.0)
Preferred system of medicine	Allopathic	107 (96.4)	99 (93.4)	206 (94.9)
	Ayurveda	0 (0.0)	3 (2.8)	3 (1.4)
	Homeopathy	4 (3.6)	4 (3.8)	8 (3.7)
OOP in Rs. Mean (SD)		1408.1 (966.4)	1287.2 (770.3)	
Bearer of health expenses	Self	66 (59.5)	69 (65.1)	135 (62.2)
	Spouse/Children	42 (37.8)	33 (31.1)	75 (34.6)
	Other source including insurance	3 (2.7)	4 (3.8)	7 (3.2)

\*Multiple responses possible

**Table 4: Factors associated with healthcare seeking behavior among participants who had one or more chronic morbidity (n=376)**

Parameter	Category	Sought Healthcare (n=217)	Did not seek Healthcare (n=159)	Crude Odds ratio	P	Adjusted Odds ratio	P
Age in years	60-69	130 (59.9)	92 (57.8)	Reference	-	Reference	-
	70-79	63 (29.0)	48 (30.2)	0.92 (0.58-1.47)	0.754	0.91 (0.56-1.49)	0.736
	≥ 80	24 (11.1)	19 (12.0)	0.89 (0.46-1.72)	0.739	0.91 (0.45-1.85)	0.811
Sex	Female	106 (48.9)	60 (37.7)	Reference	-	Reference	-
	Male	111 (51.2)	99 (62.3)	0.63 (0.41-0.96)	0.032	0.57 (0.35-0.93)	0.026
Education	Up to 8 <sup>th</sup> standard	14 (6.4)	11 (6.9)	Reference	-	Reference	-
	10 <sup>th</sup> -12 <sup>th</sup> standard	43 (19.8)	32 (20.1)	1.05 (0.42-2.63)	0.907	1.19 (0.39-2.05)	0.727
	Graduation and above	160 (73.7)	116 (73.0)	1.08 (0.47-2.47)	0.848	1.52 (0.47-2.73)	0.426
Marital status	Never married	17 (7.8)	13 (8.2)	Reference	-	Reference	-
	Currently married	137 (63.1)	105 (66.0)	0.99 (0.46-2.14)	0.995	0.89 (0.39-2.05)	0.796
	Divorced/widowed/separated	63 (29.1)	41 (25.8)	1.17 (0.51-2.67)	0.701	1.13 (0.47-2.73)	0.774
Caste	Scheduled Caste/tribe	40 (18.4)	26 (16.4)	Reference	-	Reference	-
	Other Backward Class	11 (5.1)	12 (7.5)	0.59 (0.22-1.54)	0.288	0.54 (0.20-1.43)	0.217
	General	166 (76.5)	121 (76.1)	0.89 (0.51-1.54)	0.681	0.77 (0.41-1.42)	0.410
Type of family	Living Alone	26 (12.0)	22 (13.8)	Reference	-	Reference	-
	Living with family	191 (88.0)	137 (86.2)	1.17 (0.64-2.16)	0.959	1.28 (0.62-2.64)	0.500
Financial help	Not required	193 (88.9)	140 (88.1)	Reference	-	Reference	-
	Required	24 (11.1)	19 (11.9)	0.91 (0.48-1.73)	0.789	0.80 (0.36-1.75)	0.583
Health insurance	No	98 (45.2)	73 (45.9)	Reference	-	Reference	-
	Yes	119 (54.8)	86 (54.1)	1.03 (0.68-1.55)	0.885	1.05 (0.66-1.66)	0.834
Socioeconomic status (BG Prasad scale)	≤ 1129	1 (0.5)	1 (0.6)	Reference	-	Reference	-
	1130-2259	1 (0.5)	3 (1.9)	0.33 (0.01-11.93)	0.547	0.31 (0.01-11.57)	0.529
	2260-3765	7 (3.2)	6 (3.8)	1.16 (0.06-22.93)	0.919	1.20 (0.06-24.13)	0.904
	3766-7532	18 (8.3)	14 (8.8)	1.28 (0.07-22.41)	0.863	1.24 (0.07-22.12)	0.881
	>7533	190 (87.6)	135 (84.9)	1.40 (0.09-22.69)	0.810	1.15 (0.07-19.07)	0.918

already reported that more than 90% of Indian population usually prefers allopathic system of medicine.<sup>[14]</sup> Long queues, poor cleanliness, long waiting time, and unsatisfactory doctor patient interaction time are common negative factors associated with government healthcare setups. These problems are usually not associated with private healthcare setup. These may be the reason for more than two-third of the urban population seek healthcare from private healthcare setups.<sup>[15]</sup>

Most of the participants in our study were financially independent (87.7%). The mean OOP in our study was found to be Rs. 1408.1 in males and Rs. 1287.2 in females. The finding is in concordance with another study done in Haryana.<sup>[16]</sup> The overall expenditure related to health was borne by the participants themselves or their spouse or children. Economic independence may be the reason for preferring private healthcare setup, though the reported affordability was low (6%) in our study. In addition to that, more than half of the study participants possessed health insurance (57.3%), which is much higher than the estimated coverage of health insurance in other parts of the country.<sup>[17]</sup> This might have also influenced the choice of healthcare setup.

On multivariate logistic regression, we found that except female sex, there is no statistically significant difference in healthcare-seeking behavior related to sociodemographic factors. This is in contrast to the study by Barua K *et al.*<sup>[6]</sup>, which had reported that the higher HSB among males, whereas another

study by Sharma D *et al.*<sup>[9]</sup> could not find any association between healthcare-seeking behavior with age, sex, and other sociodemographic factors. In our study, the average education of female (>85% were educated up to 12<sup>th</sup> standard or above) and financial independence were much higher than other reported studies in India. Education helps in acquiring knowledge regarding good health and illness as well as creates awareness about proper use of healthcare services, which may be the reason of difference found in the present study.<sup>[18]</sup>

Contrary to general postulation, we did not find any significant difference in the healthcare-seeking behavior among marital status and the types of the family. As most of the participants in this study were married and were staying with family, we could not find the effect of these factors on healthcare-seeking behavior.

We found 95% of the subjects sought for appropriate allopathic healthcare mostly due to self-preference (65%) and accessibility (33%). Around 45% of the study subjects had governmental insurance and low affordability; yet, they preferred private healthcare system. In addition, inappropriate healthcare-seeking behavior like buying over the counter medicine or seeking healthcare advice from informal sources was negligible. As most of the subjects were self-bearer of the cost of treatment, it will be not a far-fetching conclusion that the decision was also taken by them, which is also a good reflection of awareness about own health. However, the pattern of poor

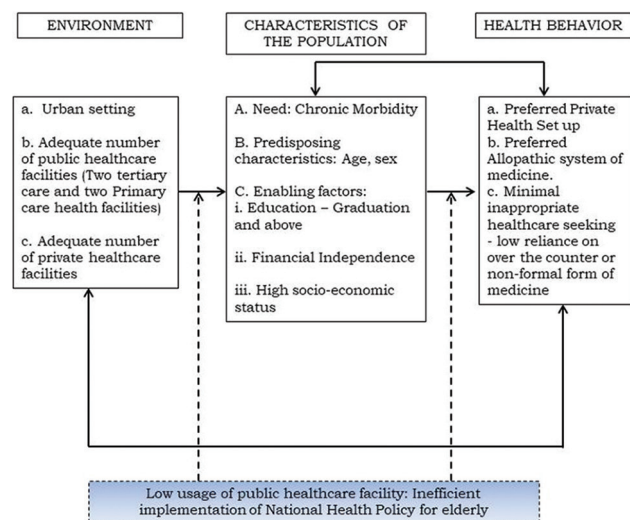
utilization of public healthcare services in spite of the presence of two tertiary care government hospitals in the locality should be reviewed seriously with special emphasis on the implementation of the Government health policies for elderly population.

Major factors influencing healthcare-seeking behavior of the study population are represented in Figure 1.

The study is unique in various aspects. To the best of our knowledge, this is first study in India which has reported the burden of chronic morbidities and the healthcare-seeking behavior of urban elderly population with high income and high education in India. We found different pattern of chronic morbidities and healthcare-seeking behavior among urban elderly population than earlier reported data. Single data collector collected all the data which has reduced the chance of interobserver bias to the minimum. As history of last 6 months was asked, the chance of recall bias could not be alleviated.

### Relevance to the practice of primary care physicians

The study findings will help to acknowledge the common health problems and the unmet needs of the urban elderly population. The synthesis of this study's knowledge will help to develop a tailor-made primary healthcare delivery system for the urban elderly population. In this study, we have assessed the factors affecting HSB, both the barriers and facilitators, of the particular population. It will help the primary care physician play a key role in sensitizing and promoting better HSB breaching the barriers and stimulating the facilitators. The knowledge of prevalent morbidities and understanding the health-seeking behavior with the associated factors will also help to implement national policy and programs related to the elderly at the primary care level. It will also enable the primary care physician to formulate practical recommendations for the elderly.



**Figure 1:** Factors influencing healthcare-seeking behavior in the study population

## Summary and Conclusion

A total of 457 elderly individuals were interviewed for this study. The prevalence of chronic morbidities was 82.3% and hypertension (66.8%) was the most common chronic morbidity. Half of the study participants of those who had chronic morbidities sought healthcare advice in last 6 months. Private healthcare setup was the most preferred option for the study participants. Female sex was found to have higher healthcare-seeking behavior than the male counterpart.

To conclude, the burden of chronic morbidities was high among the study population. However, only half of them had sought healthcare advice, and government health setups were less preferred among the study population. Implementation of national health policies for elderly has to be accelerated to improve the utilization of the government health system to promote health among the elderly.

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### Conflicts of interest

There are no conflicts of interest.

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