



# Morbidity Patterns and Determinants of Healthcare-Seeking Behavior Among Older Women in Selected Rural Areas of Bangladesh

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## Abstract

**Background** Bangladesh has experienced growth in the older population in number and proportion, owing to a decline in fertility and mortality, and an increase in life expectancy. Older women in rural Bangladesh have considerably poorer health status than older men, because of women's higher life expectancy and extreme vulnerability as a result of socioeconomic marginalization.

**Objectives** The purpose of the current study was to explore the morbidity patterns and healthcare-seeking behaviors, and their determinants, among older women in selected rural areas of the Bagerhat District in Bangladesh, and to provide recommendations for potential future interventions in this context.

**Material and Methods** A cross-sectional study was conducted at the household level. Data were collected from 233 randomly selected older women  $\geq 60$  years of age in three selected villages in the Bagerhat district in Bangladesh in November 2021. Univariate and bivariate analyses (Chi-squared test) were applied to explore morbidities and the associations of healthcare-seeking behaviors with various determinants. Multivariable logistic regression was applied to identify the associations between healthcare-seeking behavior and significant determinants extracted from the bivariate analysis.

**Results** Diabetes and liver diseases were the most common morbidities among older women. Multivariable logistic regression analysis indicated that education, living arrangement, size of the family, and morbidity patterns were significantly associated with seeking healthcare services among older women in rural Bangladesh ( $P \leq 0.05$ ). The rates of seeking healthcare services were higher among older women with primary and secondary education, those living with spouses and children, those residing in extended families with seven or more members, and older women with diabetes and liver diseases.

**Conclusion** On the basis of the findings, we suggest that the traditional extended family structure should be sustained, wherein older people are treated with care and respect, thereby promoting healthy aging in rural Bangladesh. Furthermore, family relationships should be strengthened, because older individuals, particularly older women, require emotional and familial support to lead healthy lives. Because gender roles, norms, and relationships influence people's exposure to disease, awareness programs regarding the prevalence of morbidities in old age, particularly among older women, should be expanded in rural areas to achieve Sustainable Development Goal 3.

**Keywords** Older women · Morbidity pattern · Healthcare-seeking behavior · Determinants · Rural Bangladesh

## Abbreviations

SDG	Sustainable Development Goal	ADL	Activities of Daily Living
BDT	Bangladeshi taka	SDL	Satisfaction with Domains of Life
SPSS	Statistical Package for the Social Sciences	SE	Standard Error
AOR	Adjusted Odds Ratio	WHO	World Health Organization
CI	Confidence interval	UN	United Nations
UNFPA	United Nations Population Fund	ESCAP	Economic and Social Commission for Asia and the Pacific
		BBS	Bangladesh Bureau of Statistics

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## 1 Introduction

The contemporary world is witnessing rapid demographic changes due to a worldwide increase in the number of older people [1]. Globally, the number of people  $\geq 60$  years of age will reach 2.1 billion by 2030, and two-thirds of these people will live in low- and middle-income countries [2]. Like other Asian countries, Bangladesh is undergoing both epidemiologic and demographic transitions, wherein declines in both fertility and mortality rates have increased both the life expectancy and the aging population [3–5]. At present, Bangladesh is home to an older population exceeding 15.3 million, which constituted approximately 9.28% of the total population in 2022, as compared with 7.48% of the total population in 2011 [6]. By 2050, one in every five people in Bangladesh will be an older person [7]. Women constitute nearly half of the total older population (49.1%) [8]; the number of older women in 2015 was 7.3 million; this number has been estimated to increase to 24.1 million by 2050 [9]. Unexpectedly, approximately 73% of older women in Bangladesh live in rural and semi-rural areas [10], which lack proper healthcare services [11].

Older women compose a substantial proportion of the rural population. One explanation for this trend is Bangladesh's demographic transformation from the 1990s, with extensive rural-to-urban migration of younger people, thereby increasing the number of older women living in the countryside areas [12]. In Bangladesh, older women face substantially more difficulties than older men, because of their longer life expectancy (75.6 years for women and 73 years for men) [13], and their extreme vulnerability due to social and economic marginalization [14].

Previous studies conducted in Bangladesh have reported that the most common morbidities among older women are hypertension, diabetes, arthritis, stroke, obstructed airway diseases, osteoarthritis, signs of hypothyroidism, obstructive pulmonary disease, heart failure, visual impairment, and hearing loss [5, 15, 16]. Older women who experience multiple chronic diseases have elevated morbidity, and diminished physical functioning and quality of life, and are more likely to have persistent depression and lower social well-being. Older women in rural Bangladesh experience many health problems that might require long-term psychosocial treatment, care, and hospitalization [14].

Healthcare-seeking behavior among older women in rural Bangladesh is recognized to be constrained by a variety of socioeconomic, demographic, cultural, and health-associated variables, at the individual, familial, communal, and institutional levels [17, 18]. One key element affecting women's health is their healthcare-seeking behavior, which is influenced by their illiteracy, unemployment,

dependency on others [19], socioeconomic condition, age, [20], knowledge of diseases [18], perceived health status and illness, and type of illness, as well as the availability, accessibility, and affordability of health services [4, 20, 21].

The healthcare system and existing facilities in Bangladesh are not sufficient to meet the needs of the growing number of older people [22]. The demand for funding in the health sector is rising in tandem with the growing number of older people in society, whose nutritional and health needs must be met. To ensure that quality health service is accessible for all, the health sector of a country has been recommended to receive at least 15% of the total budget; however, for the past 10 years, the allocation for the health sector in Bangladesh has continually been less than 6% of the total budget [23]. The inadequate healthcare system has not provided quality healthcare to meet the health needs of the population in general and specifically the needs of marginalized groups, such as older people, women, and children [24].

Healthcare-seeking behavior has evolved as a means of understanding how people use the healthcare systems in their respective socio-cultural, economic, and demographic circumstances. In the developing world, older women are universally underprivileged, particularly because of their more marginal position in society than that of older men, as reflected by older women's heavy burden of diseases and poor health [19]. After a lifetime of deprivation, old age is likely to result in poor health, social isolation, and poverty. Poverty and exclusion are the greatest threats to the well-being of older women. Women, particularly widows, who have no living sons and/or live alone are believed to be particularly vulnerable to poverty, social isolation, morbidity, and mortality [25]. Although several previous studies conducted on the health problems and healthcare-seeking behavior of older people, little is known about the morbidity patterns and the determinants of the healthcare-seeking behavior of older women in rural Bangladesh. To ensure healthy aging and better healthcare in old age, the morbidity patterns of older women in rural Bangladesh and the determinants of their healthcare-seeking behavior must urgently be explored to identify future policy implications regarding this issue.

## 2 Materials and Methods

### 2.1 Research Design and Study Setting

This exploratory cross-sectional study was conducted at three selected villages—Rajpat, Ghatbilla, and Nasukhali at Kulia Union under Mollahat Upazila in the Bagerhat District of Bangladesh—to explore the morbidity patterns

and healthcare-seeking behaviors among older women and their determinants in rural settings.

Rural areas were selected, with consideration of several important criteria. First, approximately 73% of older women in Bangladesh live in rural and semi-rural areas [10], which are home to the most deprived and marginalized people, and where the availability and accessibility of healthcare services remain limited. Second, most older women living in rural areas are poor [26]. Third, most rural Bangladeshi women's dependence on families is mediated by parochial cultural norms and values, thus aggravating poor health conditions and limited access to healthcare [27–29]. Finally, long-established cultural and gender stereotype norms are particularly influential in rural areas, and can substantially negatively affect the marginalization of older women, thus leading to growing stigmas and inequalities in access to health care [17]. Herein, a survey method was used to systematically collect and analyze quantitative data, to provide a logical understanding of the determinants of healthcare-seeking behaviors among older women in the selected study area. This method was chosen because it is well suited to measuring the attitudes, perceptions, and behaviors among individual within short time periods.

## 2.2 Participants and Sampling

Participants were randomly selected at the household level, according to the following criteria: (1) each household was required to include at least one older woman  $\geq 60$  years of age; (2) the older woman was required to have resided in the selected study area for at least 3 consecutive years; (3) the older woman was required to live with her family or relatives or alone. Older women who did not meet the above criteria and/or were not willing to participate voluntarily in this study were excluded from the study.

A census at the household level was conducted in October 2021 to determine the actual population size in the study area, considering the inclusion criteria. During the census, we specifically collected the names and ages of older women and their spouses' names for identification, as well as the names of the villages. After the census was taken, a population list was created from the above information, and each participant was assigned a sequential number. According to the census, the population size of the selected study area was 297 older women. According to the formula of simple random sampling, 233 older women were selected, by considering a confidence interval of 3 and confidence level of 95%. During the field survey, we randomly selected the participants by using a lottery method with replacement.

## 2.3 Outcome Variable

Healthcare-seeking behavior among older women was the dependent variable in this study. To measure healthcare-seeking behavior, we asked participants the question: Did you seek any healthcare for your health problems in the last month? The responses were dichotomized into no = 0 and yes = 1.

## 2.4 Explanatory Determinants

We considered a total of 12 socio-demographic, economic, and health-associated determinants as independent variables. Socio-demographic factors included age (60–69, 70–79, or  $\geq 80$ ), religion (Muslim or non-Muslim), marital status (married or widowed), education (no education, primary, or secondary), living arrangement (with family [with spouse/children], alone, or with relatives), social assistance (no or yes), number of living children (two to three, or four or more), and size of family (one to six, or seven or more). In contrast, household income was considered an economic factor and was measured in Bangladeshi taka (BDT) (1000–5000, 50,001–10,000, or 10,001–15,000). The health-associated factors comprised morbidity patterns, duration of illness, and distance to a healthcare center. Older women were requested to report the most common morbidities that they had experienced in the month before the survey, which were categorized into fever of all types, gastrointestinal illness, aches and pain, respiratory illness, and diabetes and liver disease. The duration of illness was classified into short (days to 1 month) or long duration (several months to several years). The distance to a healthcare center was dichotomized into  $\leq 7$  km and  $> 7$  km.

## 2.5 Data Collection

Data were collected by female researchers (TA and SA) through face-to-face interviews with older women during November 2021, to be cognizant of gender issues and to ensure the collection of correct information. A semi-structured interview schedule containing open-ended and closed-ended questions in English was used for the field survey. Although the interview schedule was in English, during the data collection period, in consideration of local situations, the interview schedule was explained in the local language (Bengali) to every participant. The interviews comprised two sections: the first section included personal and household information of the participants, and the second section focused on morbidity patterns and healthcare-seeking behaviors among older women. A pre-test on 12 women (four from each village) was conducted before the final data collection to ensure adequate extraction of relevant information from the participants, and to minimize the redundancy and

non-response rate of the data collection tool. Data from this pre-test were excluded from the final data collection process.

## 2.6 Data Analysis

Data were analyzed in two consecutive stages with Statistical Package for the Social Sciences version 21. First, descriptive statistics, including frequency and percentage analysis were used. Subsequently, Pearson's Chi-square ( $\chi^2$ ) test of independence was applied to explore the associations between health seeking behaviors and various socioeconomic, demographic, and health-associated determinants. Finally, multi-variable logistic regression was performed, incorporating the statistically significant variables in Pearson's  $\chi^2$  test. The findings are shown as adjusted odds ratios (AORs) with 95% confidence intervals (CIs) at a 5% significance level.

## 2.7 Ethical Issues

Ethical approval was obtained from the Ethical Clearance Committee of Khulna University, Bangladesh (reference number KUECC-2021/12/42). For conducting the census in the selected study area, a written approval letter from the Upazila Nirbahi Officer was provided. Furthermore, informed verbal consent was obtained from the participants. Before collection of data, the purpose of the research was explained to the participants, who were assured that their anonymity would be maintained, their participation in the study was voluntary, and they had the right to withdraw from the study at any time.

## 3 Results

### 3.1 Morbidity Patterns Among Older Women

Table 1 shows the prevalence of common morbidities among older women in rural areas of the Bagerhat district in Bangladesh. Among the 233 older women, the most prevalent morbidities were diabetes and liver diseases (33%). Furthermore, rural older women also experienced gastrointestinal

**Table 1** Morbidity patterns among older women

Morbidity pattern among older women ( $n = 233$ )	Number	Percentage (%)
Diabetes and liver diseases	77	33.0
Gastrointestinal illness	56	24.0
Fever of all types	39	16.7
Respiratory illness	38	16.3
Aches and pain	23	9.9

illness (24%), fever of all types (16.7%), respiratory illness (16.3%), and aches and pain (9.9%).

### 3.2 Personal Profiles of Older Women

Table 2 shows the personal information of older women in rural areas of the Bagerhat district of Bangladesh. Among older women, a large proportion (48.5%) were in their sixties, Muslim (62.2%), and widows (58.4%). Slightly more than two-fifths (41.6%) had primary education, 23.2% had secondary education, and, unexpectedly, a substantial portion had no education (35.2%). All older women were housewives and were not involved in any income-generating activities in the selected study area. Approximately 64% of the older women were living alone or with relatives, and the rest were living with their spouses and children. Nearly half of the older women (49.8%) were not receiving any type of social assistance, and the rest had been receiving various types of social assistance, such as old-age allowance, widow allowance, and freedom fighter allowance. Most of the older women (82.4%) had four or more living children, and more than half (56.7%) were living in extended families consisting of seven or more members. Moreover, slightly more than half of the respondent's households had a monthly income of BDT 5,001–10,000. Nearly half the older women (49.4%) had various morbidities during longer periods ranging from several months to several years. Generally, healthcare centers are not available in rural settings in Bangladesh, and most of the older women (67.4%) reported that a healthcare center was more than 7 km from their place of residence.

Table 2 also reveals the associations among 12 socio-demographic and health-associated variables and the health-care-seeking behaviors among older women in selected rural areas of the Bagerhat district in Bangladesh. Pearson's  $\chi^2$  test of independence was conducted to assess the relationships. The findings of the univariable analysis revealed that, of the 12 independent variables, only five (marital status, education, living arrangement, size of the family, and morbidity pattern) were significantly associated with health-care-seeking behaviors among older women, at  $P < 0.05$ .

### 3.3 Determinants of Healthcare-Seeking Behaviors Among Older Women

All five significant variables from Pearson's  $\chi^2$  test were retained in the multivariable logistic regression analysis (Table 3). The adjusted effects of the explanatory variables were measured along with a 95% CI, after controlling for the effects of all other variables (Table 3). Seeking healthcare services (no = 0 and yes = 1) was the outcome variable, and the predictors were marital status, education, living arrangement, family size, and morbidity patterns.

**Table 2** Personal information and associations with healthcare-seeking behavior among older women in the Bagerhat district

Variable	Number of older women (%)	Seeking healthcare		Chi-square test ( $\chi^2$ ) value	p value
		Yes (%)	No (%)		
<b>Age</b>					
60–69	113 (48.5)	32 (28.3)	81 (71.7)	4.015	0.134
70–79	72 (30.9)	27 (37.5)	45 (62.5)		
≥ 80	48 (20.6)	10 (20.8)	38 (79.2)		
<b>Religion</b>					
Muslim	145 (62.2)	100 (69.0)	45 (31.0)	0.372	0.542
Non-Muslim	88 (37.8)	64 (72.7)	24 (27.3)		
<b>Marital status</b>					
Married	97 (41.6)	19 (19.6)	78 (80.4)	8.014	0.005**
Widowed	136 (58.4)	50 (36.8)	8 (63.2)		
<b>Education</b>					
No education	82 (35.2)	43 (52.4)	39 (47.6)	37.838	< 0.001**
Primary	97 (41.6)	10 (10.3)	87 (89.7)		
Secondary	54 (23.2)	16 (29.6)	38 (70.4)		
<b>Living arrangement</b>					
With family (spouse/children)	85 (36.5)	15 (17.6)	70 (82.4)	9.193	0.002**
Alone or with relatives	148 (63.5)	54 (36.5)	94 (63.5)		
<b>Social assistance</b>					
No	116 (49.8)	85 (73.3)	31 (26.7)	0.925	0.336
Yes	117 (50.2)	79 (67.5)	38 (32.5)		
<b>Number of living children</b>					
2–3	41 (17.6)	28 (68.3)	13 (31.7)	0.105	0.746
≥ 4	192 (82.4)	136 (70.8)	56 (29.2)		
<b>Family size</b>					
1–6	101 (43.3)	41 (40.6)	60 (59.4)	10.082	0.001**
≥ 7	132 (56.7)	28 (21.2)	104 (78.8)		
<b>Household income (in BDT)</b>					
1000–5000	81 (34.8)	51 (63.0)	30 (37.0)	3.579	0.167
50001–10000	118 (50.6)	89 (75.4)	29 (24.6)		
10001–15000	34 (14.6)	24 (70.6)	10 (29.4)		
<b>Morbidity pattern</b>					
Fever of all types	39 (16.7)	13 (33.3)	26 (66.7)	12.642	0.013*
Gastrointestinal illness	56 (24.0)	19 (33.9)	37 (66.1)		
Aches and pain	23 (9.9)	11 (47.8)	12 (52.2)		
Respiratory illness	38 (16.3)	14 (36.9)	24 (63.2)		
Diabetes and liver disease	77 (33.1)	12 (15.6)	65 (84.4)		
<b>Duration of illness</b>					
Short period	118 (50.6)	82 (69.5)	36 (30.5)	0.092	0.762
Long period	115 (49.4)	82 (71.3)	33 (28.7)		
<b>Distance to healthcare center</b>					
≤ 7 km	76 (32.6)	56 (73.7)	20 (26.3)	0.589	0.443
> 7 km	157 (67.4)	108 (68.8)	49 (31.2)		

\*Significant at 5% level

\*\*significant at 1% level

The results of multivariable logistic regression analysis revealed that education, living arrangement, family size, and morbidity patterns were significantly associated with seeking

healthcare services among older women in the Bagerhat district of Bangladesh. Furthermore, older women with primary education (AOR = 16.974; 95% CI 6.608–43.600;



**Table 3** Multivariable logistic regression analysis of healthcare-seeking behaviours and their determinants among older women

Variables	B (SE)	p value	AOR	95% CI for AOR	
				Lower	Upper
<b>Marital status</b>					
Married <sup>(Ref)</sup>					
Widowed	– 0.415 (0.649)	0.523	0.660	0.185	2.356
<b>Education</b>					
Illiterate <sup>(Ref)</sup>					
Primary	2.832 (0.481)	< 0.001**	16.974	6.608	43.600
Secondary	1.444 (0.494)	0.003**	4.236	1.608	11.158
<b>Living arrangement</b>					
With family (spouse/children) <sup>(Ref)</sup>					
Alone or with relatives	– 1.736 (0.736)	0.018*	0.176	0.042	0.746
<b>Family size</b>					
1–6 <sup>(Ref)</sup>					
≥ 7	1.772 (0.425)	< 0.001**	5.880	2.555	13.533
<b>Morbidity patterns</b>					
Fever of all types <sup>(Ref)</sup>					
Gastrointestinal illness	1.172 (0.619)	0.058	3.230	0.961	10.857
Aches and pain	0.249 (0.733)	0.734	1.282	0.305	5.394
Respiratory illness	– 0.128 (0.607)	0.833	0.879	0.267	2.893
Diabetes and liver disease	2.101 (0.626)	0.001**	8.178	2.396	27.907

AOR adjusted odds ratio, CI confidence interval, Ref. reference group, SE standard error

\*Significant at 5% level

\*\*significant at 1% level

$P < 0.001$ ) or secondary education (AOR = 4.236; 95% CI 1.608–11.158;  $P < 0.05$ ) had higher adjusted odds of seeking healthcare services than those who had no education. In addition, older women living alone or with relatives (AOR = 0.176; 95% CI 0.042–0.746;  $P < 0.05$ ) were less likely to seek healthcare services than those residing with their families (spouse/children). Interestingly, older women residing in families consisting of seven or more members (AOR = 5.880; 95% CI 2.555–13.533;  $P < 0.001$ ) were more likely to seek healthcare than their counterparts. Furthermore, older women with diabetes and liver disease (AOR = 8.178; 95% CI 2.396–27.907;  $P < 0.01$ ) sought more healthcare than those who had fever of all types.

## 4 Discussion

Bangladesh is considered one of the poorest countries in the world and has unequal access to health services, particularly in rural areas. Older women tend to experience acute and chronic diseases, and to require more treatment than other population groups, but have less access to health services, because they experience socioeconomic and cultural discrimination at the individual, familial, and institutional levels in rural settings of Bangladesh [17].

Chronic diseases naturally accumulate with age and manifest with multiple morbidities [16]. Therefore, the prevalence of morbidities and healthcare-seeking behaviors of older women must be viewed as an evolving challenge in the global context, to ensure that they have adequate quality healthcare services that are available, accessible, and affordable. The United Nations Population Fund has predicted that by 2050, Bangladesh will have 36 million senior people 60 years of age or above, or 22% of the population, given that life expectancies worldwide have been rising [6]. An empirical study conducted in rural Bangladesh by Sara and Chowdhury [15] has indicated higher morbidity prevalence among women than men; therefore, overcoming the morbidity prevalence rate among older people, particularly among women, remains a challenge. Thus, the present study was aimed at identifying morbidity patterns among older women and the determinants of healthcare-seeking behavior in selected rural areas of the Bagerhat district in Bangladesh.

The results of this study indicated that diabetes and liver diseases were the most common morbidities among the older women in selected rural areas of Bangladesh, and were followed by gastrointestinal illness, fever of all types, respiratory illness, and aches and pain. In agreement with this finding, a previous study in Pakistan has reported that the diabetes prevalence has been increasing, particularly in the adult population, because of obesity and sedentary lifestyles

[30]. Similarly, another study conducted in Karnataka, India, has reported that musculoskeletal (arthritis), cataracts, respiratory illnesses, gastrointestinal problems, dental problems, hypertension, and diabetes mellitus were the most common morbidities among rural older women [31].

In agreement with the findings of previous studies, the present study indicated that the educational status of older women had a positive and significant effect on seeking healthcare services; older women with primary education and secondary education are more likely to receive healthcare services than those with no education [32–35]. This finding might be explained by educated women potentially being more aware of health, and having better health information and available health centers, than illiterate women [36]. Furthermore, education is associated with better health knowledge and employment opportunities, thus creating economic empowerment [37] and increasing financial access to quality healthcare services [38, 39]. Unexpectedly, a prior study conducted in urban slums of Bangladesh has indicated a substantial inverse association between education and older people's healthcare-seeking behavior. The findings have indicated that older people with primary schooling are less likely than those without education to seek healthcare; this gap might be explained by social capital and disease severity having greater effects than schooling on healthcare-seeking behavior among older people living in slum regions [40].

The findings of the present study also indicated that the likelihood of seeking healthcare services was higher among older women living with their spouses and children than among those residing alone or with relatives. Previous studies conducted in Bangladesh [40], India [41, 42], and China [43] have suggested that older people living with their families have a higher prevalence of seeking healthcare than those living alone. This phenomenon might be because older people who live alone might be more susceptible to seeking lower healthcare due to their difficult living conditions, limited money, and a lack of emotional and family support [44]. Moreover, urbanization and industrialization are changing the economic structure, changing social values, and weakening the importance of the extended family. Consequently, the older generation is caught between a collapse of traditional values and the lack of adequate social protection [45].

In agreement with findings from a previous study, we observed that older women's decision to seek healthcare was affected by their family, friends, and relatives where they reside [46]. Interestingly, older women residing in families consisting of seven or more members were more likely to seek healthcare than their counterparts. In the context of rural Bangladesh, people generally reside in extended families with many members, thus creating an opportunity for older people to receive care for chronic disease or illness. Furthermore, traditional extended family patterns include

norms and values of showing respect for, and taking care of, older people in rural Bangladesh [14]. However, these norms are changing with the shifting nature of the family, thus making older people more vulnerable in rural society. Many older women in rural areas in developing countries are ignored, abandoned, and treated as burdens by their families, because they are no longer considered economically or reproductively active [47]. Loneliness and anxiety are severe emotional problems facing older people, particularly older women. Older women face substantially more difficulties than older men, because of their higher life expectancy and extreme vulnerability due to social and economic marginalization [14].

Herein, chronic diseases were found to be the key determinants explaining healthcare-seeking behavior and frequent visits to healthcare centers among older people, in agreement with results from previous studies [38, 48]. Our findings revealed that older women with diabetes and liver disease sought more healthcare services than those who had fever of all types. This phenomenon might be explained by the severity of the health problems among older women resulting in a greater likelihood of seeking higher healthcare services in rural Bangladesh among these women than their counterparts. Prior studies conducted in India [38] and Albania [49] have indicated that older people with chronic diseases such as hypertension, unlike those with other health issues, visit health facilities regularly to monitor their health.

## 5 Strengths and Limitations

The key strength of the study is that we focused on morbidity patterns and healthcare-seeking behaviors among older women in a rural setting, placing special focus on this highly vulnerable and marginalized, yet understudied group in Bangladesh. In addition, we performed a community-based survey. Given that healthcare services are not easily accessible, available, and affordable for older people in rural Bangladesh, this community survey may help policymakers formulate and implement area-specific policies to ensure gender-equitable healthcare services for older people. To further improve the validity and reliability of our findings, we used multivariable logistic regression and random sampling techniques. Finally, on the basis of our findings, we suggest several important policy recommendations that might contribute to achieving Sustainable Development Goal 3, to ensure healthy lives and promote well-being for all at all ages, particularly for older people, to ensure healthy aging.

Although the current study has several strengths, we acknowledge the potential limitations of our study. The main limitation of this study is that recall bias might have arisen because the information regarding morbidity patterns

was recorded as perceived by older women, and no clinical or diagnostic tests were performed to confirm or refute the reports. Moreover, this study did not include other factors influencing healthcare-seeking behaviors among older women, as have been considered in previous studies, such as activities of daily living and satisfaction with domains of life indices [40], affordability [50], health insurance [49], household wealth or assets [5], economic dependence [42], socioeconomic class [51], and companionship in seeking healthcare [1]. In addition, because the current study was quantitative, the triangulation of both quantitative and qualitative research approaches is important for further investigation in this field to minimize the limitations of a single research design.

## 6 Conclusion

Overcoming morbidities in old age and ensuring equal access to healthcare services for older people is a growing challenge worldwide. The current study was aimed at exploring the morbidities and determinants of healthcare-seeking behaviors among older women in selected rural areas of the Bagerhat district in Bangladesh. Our findings revealed that diabetes and liver diseases were the most common morbidities among older women. Multivariable analysis indicated that education, living arrangement, family size, and morbidity patterns were significant determinants of the healthcare-seeking behaviors among older women. On the basis of the findings, we recommend the expansion of education for women, which might enhance their awareness of morbidities in old age, promote healthy behaviors, and increase their likelihood of seeking quality healthcare during ailments. Furthermore, traditional extended family structures, in which older people are treated with care and respect, should be sustained, to promote healthy aging in rural Bangladesh. In addition, family relationships should be strengthened, because older people require emotional and familial support to lead healthy and satisfying lives. For a comprehensive understanding of the morbidity patterns and healthcare-seeking behaviors among older women, we suggest further research involving the triangulation of qualitative and quantitative analyses including additional determinants.

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## Declarations

**Conflict of interest** The authors have no conflicts of interest to declare.

**Ethics approval and consent to participate** Ethical approval was obtained from the Ethical Clearance Committee of Khulna University,

Bangladesh (reference number KUECC-2021/12/42). Furthermore, informed verbal consent was obtained from the participants in this study.

**Consent for publication** All authors approved the final version of the manuscript for publication.

**Authors' contributions** SA and TA contributed to the research conception and design, and prepared the material. Data were collected, analyzed, and interpreted by SA and TA. SA drafted and revised the manuscript, and supervised the work. MHR and MFR were responsible for manuscript writing and editing. All authors contributed to the manuscript and approved the final version for publication.

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**Availability of data and material** The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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