Morbidity Pattern among the Geriatric Population of the Rural and Urban Areas of Chattogram District in Bangladesh

S M Kamrul Hoque[1*] Sujat Paul[2] Mohammed Abu Yusuf Chowdhury[3]
Muhammed Raihan Chowdhury[4] Mohammad Abu Kausar[1]

Abstract

Background: Bangladesh is an "ageing nation" with 9.3% of its population being above 60 years of age, and by 2050 their number will increase to 22% of the total population. Understanding health problems among the elderly is a prerequisite for comprehensive geriatric care. This study aimed to investigate the morbidity pattern and its associated factors among the senior population in a rural and urban area of the Chattogram district of Bangladesh.

Materials and methods: Through a multistage sampling, 408 subjects aged 60 years and over from two Upazilas of Chattogram district (n=203) and two wards of Chattogram City Corporation and one Paurosova (n=205) were included in this cross-sectional study from October 2018 to September 2019. Socio-demographic and clinical data were collected through face-to-face interviews, medical record analysis, clinical examination, and investigations.

Results: The most common morbidities identified were the visual problem (87.3%), followed by osteoarthritis (53.9%), hypertension (44.3%), anaemia (37.5%) and Diabetes Mellitus (35.6%). Prevalence of hearing loss, dementia, and urinary incontinence were 28.9%, 16.7%, and 15.4%, respectively. The urban elderly had significantly higher proportion of hypertension (49.3% vs. 39.4%), diabetes Mellitus (40.5% vs. 30.5%), and dental problems (26.3% vs. 18.2%) whereas prevalence of anemia (40.4% vs. 24.9%) and COPD (17.6% vs. 10.7%) were more common in rural area. Rural dwellers were more likely to have lower education and wealth than urban dwellers and were more economically dependent on others than urban dwellers. In multivariable-adjusted models, factors associated with chronic conditions and/or multimorbidity were female sex, older age, and low economic condition.

1. Lecturer of Anatomy
   Chittagong Medical College, Chattogram.

2. Professor of Medicine
   Merine City Medical College, Chattogram.

3. Assistant Professor of Medicine
   Chittagong Medical College, Chattogram.

4. Post Graduate Student (Thesis Part)
   Chittagong Medical College, Chattogram.

*Correspondence: Dr. S M Kamrul Hoque
          Cell : 01819 38 61 13
          E-mail: dr.khoque@yahoo.com

Conclusion: The elderly population represents a high prevalence of morbidity with significant rural-urban variations in factors associated with morbidity. Further exploration and understanding of these rural-urban health disparities may help develop better-targeted strategies to improve health care delivery and, consequently, the health condition in rural and urban areas.

Key words: Elderly; Geriatric population; Morbidity pattern.

Introduction

With a 25-year increase in life expectancy over 50 years from 1970 to 2019, it is projected that about 22% of the total population of Bangladesh will be aged 60 years or over by 2050.[1,2] Over the past decades, health programs and policies in Bangladesh have been focusing on issues like population stabilization, maternal and child health and disease control.[3] Like the pediatric population, a geriatric population, is also a vulnerable group. Some conditions and morbidities are prevalent in this age group and significantly impact our national health care system. Hence, the need for the hour is to set up special health services for the senior population by the common health problems and morbidity profile.[4]

Studies have been conducted in different countries regarding this issue, but unfortunately, very few are known about this problem in Bangladesh.[4-8] To meet this need, comprehensive information about the problem burden is essential so that proper planning and execution can be done for apposite organization of the health system. This study was conducted to determine the morbidity pattern and associated factors among the senior population of selected rural and urban areas of the Chattogram district of Bangladesh. We hypothesized that the rural geriatric population's morbidity pattern and related characteristics differ from that of the urban population.

Materials and methods

The current study was a cross-sectional, observational, community-based study on the geriatric dwellers of rural and urban Chattogram, Bangladesh, conducted from October 2018 to September 2019. Before commencing the study, approval was obtained from the Ethical Review Committee of Chittagong Medical College. For each participant, verbal consent was brought before the interview/data collection.

The target population included all dwellers aged 60 years and older in some selected rural and urban areas of the study site. We excluded individuals who refused to participate voluntarily in the study. Through multistage sampling required number of the participants were selected from the study sites.

A sample size of 410 was estimated for the present study. Out of 410, 203 senior people from rural areas and 205 senior people from urban areas.

Data were collected with a pretested structured case record form which had two parts, questions related to socio-demographic characteristics and questions about morbidity patterns. To ascertain chronic conditions, we used the patient's previous medical records. The questions were phrased to elicit whether the patient had ever been told by a doctor or any other health care provider that he had any of the listed chronic health problems. The diagnosis was obtained from written medical records available with the patient. A detailed case history was received, and a complete clinical examination arrived at a final diagnosis. System-based history and physical examination were made to identify any undiagnosed systemic illness. Blood was collected for necessary investigations (Hb%, Random Blood Glucose). Socio-economic status was defined as per the Modified Kuppuswamy Socio-economic scale.[9] Individuals with ≥2 chronic conditions were considered as living with multimorbidity.

SPSS version 23.0 was used for data entry and analysis. Variables were compared between groups by Chi-square testor Fisher's exact test. Binary logistic regression was used to assess the associations of sociodemographic and socioeconomic variables with the presence of chronic conditions and the number of chronic diseases (Dichotomized into "one chroniccondition" vs. "≥ two chronic conditions"). Results were expressed as Odds Ratios (ORs) and their respective 95% Confidence Intervals (CIs). The statistically significant level of findings was considered as a p-value <0.05.

Results

The overall mean age of the participants was 66.17±5.76 years, without any significant rural-urban differences in age group and gender distributions. Illiteracy was significantly higher in the rural group thanin the urban group. In urban areas, majorities lived in a nuclear family, in contrast to rural areas where the majority lived in a Joint family. The proportion of single elderly was similar in both rural and urban areas. More rural subjects were from upper,lower, or lower classesthan their urban counterparts. Similarly, economic dependency was more among the rural population and a comparatively higher number of urban elderlies working at the time of data collection (Table I).

Table I Sociodemographic characteristics of the respondents stratified by their residential status

Variables	Rural (n=203)	Urban (n=205)	Total (n=408)	p-value
Age				
60-69 Years	139 (68.5%)	152 (74.1%)	291 (71.3%)	0.073*
70-79 Years	53 (26.1%)	50 (24.4%)	103 (25.2%)	
≥ 80 Years	11 (5.4%)	3 (1.5%)	14 (3.4%)	
Sex				
Male	103 (50.7%)	105 (51.2%)	208 (52.0%)	0.979*
Female	100 (49.3%)	100 (49.8%)	200 (48.0%)	
Education				
Illiterate	112 (55.2%)	56 (27.3%)	168 (41.2%)	<0.001*
Literate	91 (44.3%)	149 (72.7%)	240 (58.8%)	
Marital status				
Partnered	170 (83.7%)	183 (89.3%)	353 (86.5%)	0.102*
Single	33 (16.3%)	22 (10.7%)	55 (16.3%)	
Family type				
Nuclear	48 (23.6%)	162 (79.0%)	210 (51.5%)	<0.001*
Joint	155 (76.4%)	43 (21.0%)	198 (48.5%)	
Vocational status				
Working	34 (16.7%)	67 (32.7%)	101 (24.8%)	<0.001*
Not working	169 (83.3%)	138 (67.3%)	307 (75.2%)	
Socio-economic class				
Upper	2 (1.0%)	6 (2.9%)	8 (2.0%)	<0.001*
Upper middle	10 (4.9%)	44 (21.5%)	54 (13.2%)	
Lower middle	26 (12.8%)	60 (29.3%)	86 (21.1%)	
Upper lower	103 (50.7%)	76 (37.1%)	179 (43.9%)	
Lower	62 (30.5%)	19 (9.3%)	81 (19.9%)	
Economic dependency				
Independent	27 (13.3%)	60 (29.3%)	87 (21.3%)	<0.001*
Partly dependent	22 (10.8%)	21 (10.2%)	43 (10.5%)	
Fully dependent	154 (75.9%)	124 (60.5%)	278 (68.1%)	

Data were expressed as frequency (%). Single: divorced/widowed/unmarried, * Chi-square test.

HTN, DM and dental problems were significantly more prevalent among the urban elderly than rural subjects. In contrast, COPD and anaemia were more commonplace among rural elderly than the urban elderly (Table II).

Table II Morbidity among the participants by their residential status

Comorbidity	Rural (n=203)	Urban (n=205)	Total (n=408)	p-value
HTN	80 (39.4%)	101 (49.3%)	181 (44.3%)	0.045*
DM	62 (30.5%)	83 (40.5%)	145 (35.6%)	0.036*
IHD	36 (17.7%)	37 (18.0%)	73 (17.9%)	0.934*
COPD	36 (17.6%)	22 (10.7%)	58 (14.2%)	0.047*
Asthma	21 (10.3%)	20 (9.8%)	41 (10.0%)	0.843*
CKD	3 (1.5%)	2 (1.0%)	5 (1.2%)	0.645†
Visual disturbance	174 (85.7%)	182 (88.8%)	356 (87.3%)	0.359*
Hearing problem	59 (29.1%)	59 (28.8%)	118 (28.9%)	0.950*
Dementia	37 (18.2%)	31 (15.1%)	68 (16.7%)	0.412*
Skin disease	23 (11.9%)	25 (12.2%)	48 (11.8%)	0.786*
Dental problem	37 (18.2%)	54 (26.3%)	91 (22.3%)	0.048*
Osteoarthritis	101 (49.8%)	119 (58.0%)	220 (53.9%)	0.093*
Osteoporosis	3 (1.5%)	5 (2.4%)	8 (2.0%)	0.484†
Anemia	82 (40.4%)	51 (24.9%)	153 (37.5%)	0.021*
Tuberculosis	15 (7.4%)	18 (8.8%)	33 (8.1%)	0.601*
U. incontinence	40 (19.7%)	23 (11.2%)	63 (15.4%)	0.018*
Genital prolapse	12 (5.9%)	8 (3.9%)	20 (4.9%)	0.234*
H/O Fall	11 (5.5%)	15 (7.4%)	26 (6.4%)	0.214*

Data are expressed as frequency (%), HTN: Hypertension, DM: Diabetes Mellitus, IHD: Ischaemic Heart Disease, COPD: Chronic Obstructive Pulmonary Diseases, CKD: Chronic Kidney Disease, * Chi-square test, †Fisher's Exact test.

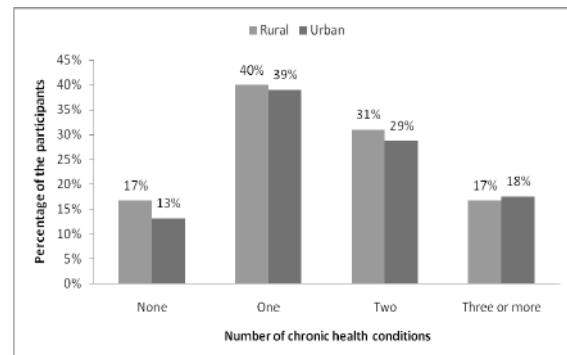There were no rural-urban differences in the number of chronic health conditions distributions (Figure 1).

Figure 1 Number of chronic health conditions in study participants by their residential status

After adjusting the other variables in binary logistic regression analysis, positive and statistically significant associations of at least one chronic condition with female sex, older age, and lower socio-economic class were observed. After adjusting the other variables in binary logistic regression analysis, positive and statistically significant associations of the presence of multimorbidity with older age and lower socio-economic class were observed (Table III).

Table III Association of socio-demographic factors with the presence of any chronic conditions and presence of multimorbidity in study participants odds ratios from binary logistic regression

Variable	Presence of chronic conditions*		Presence of multimorbidity†	
	OR (95% CI)	p value	OR (95% CI)	p value
Age				
60-69 years	1.0 (Reference)		1.0 (Reference)	
70-79 years	1.89 (1.01-4.15)	0.021	1.35 (1.01-5.15)	0.034
80 years	2.56 (1.11-7.81)	0.015	1.99 (1.12-8.45)	0.042
Sex				
Male	1.0 (Reference)		1.0 (Reference)	
Female	1.79 (1.39-4.65)	0.003	1.18 (0.35-3.47)	0.063
Residence				
Rural	1.0 (Reference)		1.0 (Reference)	
Urban	1.11 (0.08-1.43)	0.542	1.02 (0.09-3.21)	0.652
Education				
Literate	1.0 (Reference)		1.0 (Reference)	
Illiterate	1.08 (0.02-2.59)	0.087	1.01 (0.02-3.26)	0.142
Marital status				
Partnered	1.0 (Reference)		1.0 (Reference)	
Single	1.11 (0.02-2.59)	0.065	1.09 (0.02-2.59)	0.105
Family type				
Nuclear	1.0 (Reference)		1.0 (Reference)	
Joint	0.89 (0.02-2.59)	0.097	0.92 (0.02-2.59)	0.117
Socio-economic status				
Upper and middle class	1.0 (Reference)		1.0 (Reference)	
Lower class	2.24 (1.68-3.03)	0.001	1.94 (1.12-4.12)	0.043

* OR: presence vs. absence of chronic conditions.†OR: multimorbidity (≥2 chronic conditions) vs. single morbidity (1 chronic condition).

Discussion

Regarding morbidities, the present study demonstrated the most common morbidities among rural and urban elderly were eye problems, musculoskeletal disorders, hypertension, DM, hearing problems and dental problems, which were consistent with other similar studies conducted in and around Bangladesh.[9-11] Hypertension was the most common non-communicable disease in the current study. DM

was another common chronic disease (35.6%) diagnosed among elderly patients. In our research, more urban elderly (40.5%) was diabetic compared to (30.5%) of rural elderly. Diabetes is one of the growing health problems in the elderly population globally and in southeast Asia.[12]

Urban residence was significantly associated with diabetes, HTN and edentulism in this study, as found in previous studies.[13,14] The higher observed prevalence of diabetes in urban rather than rural areas may be related to a higher prevalence of combined risk factors, such as dietary changes, physical inactivity and obesity.[15] Older adults in rural areas may have less access to being diagnosed with diabetes than in urban areas.[15] Possible reasons for the higher prevalence of edentulism in urban areas may be related to dietary changes such as increased consumption of refined sugars, which may lead to caries and tooth loss and dental care services and tooth extractions are more likely to be available in urban than rural areas.[16]

In the current study, osteoarthritis was the second most frequent problem reported by the participants both in rural and urban areas. Musculoskeletal problems were also reported as the most typical finding among the elderly population in a study conducted in and around our country.[10,17] A study from the urban area of Bangladesh reported that the leading symptoms among the male elderly were visual impairment (78%) which supports the present study's findings.[17] Vision problem was found in 87.3% as the most common morbidity among the elderly in the present study.In the present study, the prevalence of anemia among rural elderly (40.4%) was higher than in urban elderly (24.9%). Verma et al also observed similar rural-urban differences in the distribution of anemia in India.[14]

This study revealed that 89% of the elderly had two or more co-morbidity. This was similar to the findings of other studies in and around our country.[4-8]

In this study, it was observed that increasing age was independently associated with the presence or absence of comorbidity and with the facts of multimorbidity.Other than age, the present study observed an independent association between gender and chronic health conditions, with significantly higher odds for female participants.

Moreover, chronic health conditions were more likely to be present among lower socioeconomic class participants than among upper and middle class. The prevalence of morbidity was more among the elderly who belonged to the lower socioeconomic class than those who belonged to the higher socioeconomic class. This difference was highly significant, as seen in the WHO health profile of the elderly in the Southeast Asia region.[18] Other studies reported higher age, male gender, single marital status, and low incomes were the predictive factors among the older population.[4,6,19]

Limitation
The study's cross-sectional design prevents conclusions about the causality of the observed associations. Data reported by the subjective could be prone to recall bias.

Conclusion
In conclusion, the elderly population represents a high prevalence of morbidity like impaired vision, musculoskeletal problems, HTN, DM, anemia etc. Significant rural-urban variations in factors associated with morbidity and chronic conditions exist.

Recommendation
A health screening Programme should be initiated for elderly citizens in Bangladesh's primary health care facilities. Further exploration and understanding of these rural-urban health disparities may help develop better-targeted strategies to improve health care delivery and, consequently, the health condition in rural and urban areas.

Contribution of authors
SMKH-Conception, data analysis, manuscript writing & final approval.
SP-Design, Interpretation of data, critical revision & final approval.
MAYC-Data collection, critical revision & final approval.
MRC-Data collection, manuscript writing & final approval.
MAK-Interpretation of data, critical revision & final approval.

Disclosure

All the authors declared no competing interest.

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