

Socio-Demographic Influences on the Development of Generalized Anxiety Disorder in A Rural Bangladeshi Population

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Abstract

Original Research Article

Background: Generalized Anxiety Disorder (GAD) is a prevalent yet often underrecognized mental health condition, with its burden steadily increasing in developing nations like Bangladesh. The purpose of the study is to evaluate the impact of socio-demographic factors on the development of generalized anxiety disorder among individuals in a rural Bangladeshi population. **Aim of the study:** The aim of the study was to assess the impact of socio-demographic factors on the development of generalized anxiety disorder among individuals in a rural Bangladeshi population. **Methods:** This cross-sectional study at the Department of Medicine, 250 Bedded Sadar Hospital, Joypurhat (Jan–Jul 2024) included 200 rural adults (≥ 18 years) selected purposively, excluding those with other psychiatric disorders or on psychotropic drugs. Socio-demographic data and anthropometric measurements were collected, and anxiety severity assessed via GAD-7. Data were analyzed using SPSS 26.0 with descriptive stats and chi-square tests ($p < 0.05$). **Results:** In 200 participants (mean age 37.7 ± 12.6 ; 78% female), severe GAD was highest in ages 18–30 (57%) and housewives (37%), while mild GAD prevailed in older groups and other occupations ($p < 0.001$). Males had 67% mild GAD; females had more moderate (36%) and severe (26%) anxiety ($p = 0.0035$). Age, sex, and occupation were significantly associated with GAD severity. **Conclusion:** Younger age, female sex, and being a housewife were significantly associated with higher severity of generalized anxiety disorder in this rural Bangladeshi population.

Keywords: Socio-Demographic Factors, Generalized Anxiety Disorder, Rural Bangladesh.

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INTRODUCTION

Mental disorders consistently rank within the top ten causes of global health burden, impacting about one in every eight people worldwide [1,2]. In 2021, approximately 970 million individuals were affected by mental health conditions, including 236 million in South Asia alone [1]. Anxiety and depression stand out as major contributors to global mental health challenges. Generalized Anxiety Disorder (GAD) is marked by excessive worry, fear, and associated behavioral disturbances, often leading to significant distress or impairment in daily functioning [2]. The economic impact of anxiety and depression is substantial, with productivity losses estimated at US\$1 trillion annually worldwide and expected to rise to \$16 trillion by 2030 [3]. Importantly, GAD is a prevalent condition globally, with its occurrence steadily increasing in developing nations.

In Bangladesh, a lower-middle-income nation in South Asia, approximately 5% of the population experiences anxiety disorders, and 6% are affected by depressive disorders [4]. These figures are largely based on models due to the scarcity of nationally representative data. A rural community-based study found the overall prevalence of psychiatric disorders to be 16.5%, with anxiety disorders comprising 5% of cases [5]. Despite the considerable burden, mental health continues to be a widely neglected aspect of public health in Bangladesh. The situation is worsened by a shortage of mental health professionals, uneven distribution of services concentrated in urban areas, and weak policy enforcement [6]. Additionally, research indicates that 27% of female university students experienced anxiety during the COVID-19 pandemic, pointing to increased vulnerability in specific populations [7]. Factors such as limited awareness, financial difficulties, stigma, and concerns about marital consequences continue to hinder access to mental healthcare, especially for women [8,9].

Socio-demographic factors play a significant role in the onset and severity of Generalized Anxiety Disorder (GAD). Mental health conditions are notably more common among economically disadvantaged groups, especially individuals aged over 45 [10]. National surveys from Bangladesh reveal a higher incidence of mental disorders among women. Research has highlighted important contributing factors such as gender, age, low socioeconomic status, education level, and occupation [11-13]. Women frequently encounter additional obstacles, including limited decision-making power and low mental health awareness, which heighten their vulnerability [14,15]. Recognizing these socio-demographic influences is essential for developing targeted interventions and enhancing mental health outcomes in rural populations of Bangladesh.

Despite the growing recognition of anxiety disorders globally and regionally, there remains a significant lack of community-based research in rural Bangladeshi settings that specifically examines how socio-demographic characteristics influence the development of GAD. Most existing studies are either model-based or urban-focused, offering limited insight into rural mental health dynamics where access, awareness, and reporting remain critically low. This gap in empirical evidence hinders the design of effective, context-specific mental health interventions. The purpose of the study is to evaluate the impact of socio-demographic factors on the development of generalized anxiety disorder among individuals in a rural Bangladeshi population.

OBJECTIVE

- To assess the impact of socio-demographic factors on the development of generalized anxiety disorder among individuals in a rural Bangladeshi population.

METHODOLOGY & MATERIALS

This cross-sectional study was conducted at the Department of Medicine, 250 Bedded Sadar Hospital, Joypurhat, Bangladesh, between January 2024 and July 2024. A total of 200 participants were enrolled to assess the socio-demographic influences on the development

and severity of Generalized Anxiety Disorder (GAD) in a rural population. Participants were selected using a purposive sampling technique based on predefined eligibility criteria.

Inclusion Criteria

- Adults aged 18 years and above
- Residents of rural areas attending 250 Bedded Sadar Hospital, Joypurhat during the study period
- Willing and able to provide informed written consent
- No prior diagnosis of psychiatric disorders other than GAD

Exclusion Criteria

- Individuals below 18 years of age
- Patients with diagnosed psychiatric illnesses other than GAD (e.g., major depressive disorder, schizophrenia)
- Individuals currently receiving anxiolytic or psychotropic medications

Data were collected using a structured, interviewer-administered questionnaire. Socio-demographic variables including age, sex, and occupation were recorded. Anthropometric measurements—height, weight, body mass index (BMI), upper arm circumference (UAC), and waist circumference (WAC)—were taken using standardized procedures. Anxiety severity was assessed with the Generalized Anxiety Disorder 7-item (GAD-7) scale and categorized as mild (scores 5–9), moderate (10–14), and severe (15–21). Informed written consent was obtained from each participant prior to data collection. Confidentiality and anonymity were maintained throughout the study. Data were entered and analyzed using SPSS version 26.0. Descriptive statistics including frequency, percentage, mean, and standard deviation were used to summarize participant characteristics. The Chi-square test was used to examine associations between socio-demographic factors and GAD severity. A p-value of <0.05 was considered statistically significant.

RESULTS

Table 1: Socio-Demographic Characteristics of the Study Population (N = 200)

Variable		Frequency (n)	Percentage (%)
Age (years)	18–30	65	32.5
	31–45	95	47.5
	46–60	20	10.0
	≥61	20	10.0
	Mean ± SD	37.7 ± 12.6	
Sex	Male	45	22.5
	Female	155	77.5
Occupation	Housewife	135	67.5
	Service Holder	20	10.0
	Farmer	15	7.5
	Student	10	5.0
	Police	5	2.5
	Business	5	2.5
	Others	10	5.0

Table 1 outlines the socio-demographic distribution of the study participants. The majority of respondents were aged 31–45 years, comprising 95 (47.5%), followed by those aged 18–30 years with 65 (32.5%). Participants aged 46–60 and ≥ 61 years each accounted for 20 (10.0%). The mean age of the population was 37.7 ± 12.6 years. Most participants were

female, 155 (77.5%), while males constituted 45 (22.5%). Regarding occupation, housewives were predominant at 135 (67.5%), followed by service holders 20 (10.0%), farmers 15 (7.5%), students 10 (5.0%), police personnel 5 (2.5%), businesspersons 5 (2.5%), and others 10 (5.0%).

Table 2: Anthropometric Measurements of the Study Population (N = 200)

Variable	Mean	Standard Deviation
Height (cm)	151.88	± 7.03
Weight (kg)	53.38	± 9.09
Body Mass Index (BMI)	23.75	± 3.52
Upper Arm Circumference (cm)	27.93	± 3.09
Waist Circumference (cm)	86.25	± 11.33

Table 2 presents the mean values and standard deviations of key anthropometric parameters among the study participants. The average height was 151.88 ± 7.03 cm and the mean body weight was 53.38 ± 9.09 kg. The

mean Body Mass Index (BMI) was 23.75 ± 3.52 , indicating a generally normal weight range. The mean upper arm circumference measured 27.93 ± 3.09 cm, and the average waist circumference was 86.25 ± 11.33 cm.

Table 3: Association Between Age and Severity of Generalized Anxiety Disorder (GAD) (N = 200)

Age Group (years)	Mild (5–9)	Moderate (10–14)	Severe (15–21)	Total	p-value
18–30	10 (15.4%)	18 (27.7%)	37 (56.9%)	65	<0.001
31–45	55 (57.9%)	30 (31.6%)	10 (10.5%)	95	
46–60	15 (75.0%)	3 (15.0%)	2 (10.0%)	20	
≥ 61	10 (50.0%)	4 (20.0%)	6 (30.0%)	20	
Total	90 (45.0%)	55 (27.5%)	55 (27.5%)	200	

Table 3 presents the distribution of GAD severity categorized as mild (5–9), moderate (10–14), and severe (15–21) across different age groups. Participants aged 18–30 years showed a notably higher proportion of severe anxiety cases, with 37 individuals (56.9%) falling in this category. Conversely, the 31–45 age group had the highest prevalence of mild anxiety,

with 55 individuals (57.9%). The 46–60 age group primarily experienced mild anxiety (15 individuals, 75.0%), while the ≥ 61 age group had a more balanced distribution, with 6 individuals (30.0%) exhibiting severe anxiety. These differences in anxiety severity across age groups were statistically significant (Chi-square test, $p < 0.001$).

Table 4: Association Between Sex and Severity of Generalized Anxiety Disorder (GAD) (N = 200)

Sex	Mild (5–9)	Moderate (10–14)	Severe (15–21)	Total	p-value
Male	30 (66.7%)	10 (22.2%)	5 (11.1%)	45	0.0035
Female	60 (38.7%)	55 (35.5%)	40 (25.8%)	155	
Total	90 (45.0%)	65 (32.5%)	45 (22.5%)	200	

Table 4 shows the distribution of GAD severity across male and female participants. A higher proportion of males (30; 66.7%) experienced mild anxiety compared to females (60; 38.7%). Moderate and severe anxiety

were more prevalent among females, with 55 (35.5%) and 40 (25.8%) cases, respectively. The association between sex and GAD severity was statistically significant (Chi-square test, $p = 0.0035$).

Table 5: Association Between Occupation and Severity of Generalized Anxiety Disorder (GAD) (N = 200)

Occupation	Mild (5–9)	Moderate (10–14)	Severe (15–21)	Total (n)	p-value
Housewife	40 (29.6%)	45 (33.3%)	50 (37.0%)	135	<0.0001
Service Holder	14 (70.0%)	5 (25.0%)	1 (5.0%)	20	
Farmer	10 (66.7%)	4 (26.7%)	1 (6.6%)	15	
Student	8 (80.0%)	2 (20.0%)	0 (0.0%)	10	
Police	4 (80.0%)	1 (20.0%)	0 (0.0%)	5	
Business	3 (60.0%)	2 (40.0%)	0 (0.0%)	5	
Others	1 (10.0%)	2 (20.0%)	7 (70.0%)	10	
Total	80 (40.0%)	61 (30.5%)	59 (29.5%)	200	

Table 5 illustrates the distribution of GAD severity across different occupational groups. Among housewives, the highest proportion exhibited severe anxiety, with 50 individuals (37.0%) affected. In contrast, service holders, farmers, students, police personnel, and businesspersons predominantly experienced mild anxiety, with percentages ranging from 60.0% to 80.0%. Notably, the 'Others' category showed a majority with severe anxiety, accounting for 7 individuals (70.0%). The association between occupation and GAD severity was statistically significant (Chi-square test, $p < 0.0001$).

DISCUSSION

The socio-demographic influences on the development and severity of Generalized Anxiety Disorder (GAD) among individuals in a rural setting of Bangladesh. GAD, characterized by persistent and excessive worry, poses a growing mental health concern, particularly in underserved rural populations. The findings emphasize the significant associations between anxiety severity and factors such as age, sex, and occupation, reflecting the multifaceted nature of mental health vulnerabilities. These insights underscore the importance of context-specific mental health strategies that address socio-demographic disparities to improve early identification, support, and care for affected individuals in rural communities.

The socio-demographic characteristics of the present study population show a predominance of females (77.5%), with the majority aged between 18–45 years (80%) and primarily engaged in household work (67.5%), reflecting patterns similarly observed in previous studies. Raza *et al.*, [16] found that females had nearly twice the prevalence of generalized anxiety disorder (GAD) compared to males, a trend consistent with our sample's female majority and their greater burden of GAD. While Raza *et al.*, [16] reported the highest anxiety odds among women aged 45–49 (AOR=2.33), they also noted that mild anxiety was more common in the younger age segments, particularly those under 45, which aligns with our cohort where 18–30 and 31–45 age groups accounted for over 80% of the population. Regarding occupational status, the high proportion of housewives in our study mirrors findings from both Raza *et al.*, [16] and Muzaffar *et al.*, [17], who reported increased odds of anxiety among individuals in non-agricultural roles such as housewives, service holders, and businessmen (AOR=1.40), in contrast to lower anxiety prevalence among agricultural workers (AOR=0.74). These parallels with existing literature support the representativeness and reliability of the current study's demographic profile in understanding GAD distribution in a rural Bangladeshi setting.

The anthropometric profile of the study population, with a mean BMI of 23.75 ± 3.52 kg/m² and waist circumference of 86.25 ± 11.33 cm, aligns with

previous research linking body composition to anxiety risk. Duty *et al.*, [18] observed a U-shaped relationship between BMI and anxiety, where both underweight and obese individuals exhibited higher odds of anxiety, with the lowest risk centered around a BMI of approximately 22.8 kg/m². Our cohort's average BMI closely reflects this low-risk zone, suggesting a relatively balanced body weight profile. However, the elevated mean waist circumference—particularly relevant for female participants—mirrors the findings of Nameni *et al.*, [19], who reported a significant association between higher visceral fat area and increased GAD prevalence in women (PR = 1.42; 95% CI: 1.07–1.87), with obesity (BMI > 30) further doubling the lifetime risk (PR = 2.35; 95% CI: 1.07–5.13). These parallels underscore the role of central adiposity and overall body composition in anxiety vulnerability, particularly in women.

The present study demonstrated a statistically significant correlation between age and the severity of Generalized Anxiety Disorder (GAD) ($p < 0.001$). Younger adults aged 18–30 showed the highest prevalence of severe anxiety (56.9%), whereas older individuals were more likely to present with mild symptoms. This trend is strongly aligned with findings from the U.S. National Health Interview Survey (2019), which reported a progressive decline in anxiety severity with increasing age—highlighting 19.5% prevalence in adults aged 18–29, compared to just 11.2% in those aged 65 and above [20]. Similarly, mild anxiety declined from 12.1% in younger adults to 7.1% in the oldest group, supporting our data where the 46–60 and ≥ 61 age brackets demonstrated markedly lower rates of severe GAD. These parallels underscore the consistent pattern across populations that younger individuals are disproportionately affected by severe anxiety, possibly due to increased psychosocial stressors, lifestyle instability, and transitional life challenges typical of early adulthood.

In the present study, a significant association was observed between sex and the severity of Generalized Anxiety Disorder (GAD) ($p = 0.0035$), with females exhibiting higher rates of moderate (35.5%) and severe (25.8%) anxiety compared to males, who more frequently reported mild symptoms (66.7%). This is consistent with the findings of Muzaffar *et al.*, [17], who observed that 61.8% of female university students experienced mild to severe GAD, in contrast to 38.2% of their male counterparts. The study further indicated that women were more than twice as likely to experience anxiety (AOR=2.21; $p = 0.004$). These parallels reinforce the sex-based disparity in GAD prevalence and severity, as seen in both the current rural Bangladeshi cohort and broader academic populations.

In the present study, a significant association was observed between occupation and the severity of Generalized Anxiety Disorder (GAD) ($p < 0.0001$), with

housewives constituting the largest group experiencing severe anxiety (37.0%), followed by individuals in the "others" category (70.0% severe). In contrast, service holders, farmers, students, police, and businesspersons predominantly reported mild symptoms, with no severe cases reported among students, police, or business groups. These findings align with the results of Haque *et al.*, [21], who reported a significantly higher prevalence of GAD among housewives and businessmen compared to other occupational groups ($p < 0.001$). The heightened anxiety among housewives in particular may reflect cumulative psychosocial stressors, limited economic independence, and household burdens, which have been commonly linked to poor mental health outcomes in similar sociocultural contexts.

LIMITATIONS OF THE STUDY

This study had several limitations:

- Sample size may limit the generalizability of the findings.
- The study's limited geographic scope may introduce sample bias, potentially affecting the broader applicability of the findings.

CONCLUSION

This study demonstrates that socio-demographic factors significantly influence the severity of generalized anxiety disorder (GAD) in a rural Bangladeshi population. Younger individuals (18–30 years) and housewives exhibited higher rates of severe anxiety, while mild anxiety was more common among older age groups and occupational categories such as service holders and students. Females showed greater prevalence of moderate and severe anxiety compared to males. These findings underscore the importance of targeted mental health interventions considering age, sex, and occupation to effectively address GAD in rural communities.

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