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Research Article

Prevalence of Anxiety, Depression, and Stress among Graduate Female Students in Bangladesh: A Cross-Sectional study

Hafizur Rahman Chowdhury[1], Monirul Islam[2]* and Nahid Mahjabin Morshed[3]

[1]*Associate Professor, Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh*

[2]*Research Assistant, Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh*

[3]*Chairman and Professor, Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh*

***Corresponding author:** Monirul Islam, Department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh

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Abstract

Academic pressure, job seeking, and excessive competition might cause mental health issues in graduate female students. However, there are few studies on mental health status concerning such issues among university students. This study aimed to assess the prevalence of depression, anxiety, and stress among Bangladeshi graduate female students. A cross-sectional study design was followed using an online tool including socio-demographic questions, and the 21-item Bangla Depression, Anxiety, and Stress Scale (BDASS-21). The survey form was enthusiastically filled out by 236 amazing Bangladeshi female graduates. We observed that 55.51% had mild to extremely severe anxiety, 53.39% depression, and 27.54% stress. Elderly female graduates exhibited a lower degree of vulnerability compared to their younger counterparts. Research has revealed a notable disparity in the occurrence of anxiety, depression, and stress between unmarried women and their married counterparts, with unmarried women exhibiting a higher incidence of these mental health conditions. Housewives exhibit a higher prevalence of favorable mental health conditions in comparison to individuals employed in other occupations. Individuals with higher incomes tend to exhibit better health status. Many students have significant depression, anxiety, and stress levels. This suggests more research to grasp these concerns and create effective interventions for this concern group.

Keywords: Depression; Anxiety; Stress; Graduate Female Students; Bangladesh

Introduction

Concerns regarding an individual's mental health are increasingly becoming one of the most critical challenges for the general mental health of a nation in low- and middle-income countries like Bangladesh [1]. Bangladesh is an example of a country with a low income. The prevalence of mental disorders in Bangladesh was estimated to range from 6.5 to 31.0% among individuals aged 18-65 years old, and from 13.4 to 22.9% among children aged 5-17 years old, according to a systematic review [2]. The situation is rendered even more serious by the fact that Bangladesh is afflicted by a significant dearth of educated mental health specialists; this shortage has a direct impact on the mental health care system that is currently in place throughout the country. The allocation for mental health treatment in Bangladesh, which is included in the overall budget for health care in the country, makes up a pathetic 0.44 percent of the total. Only 0.11% of people have access to essential free psychiatric assistance [3,4], and the majority of people who do have access to it are expected to pay for it. According to the findings of James et al. (2018), there are around 264 million people all over the world who are plagued by depression [5]. According to the World Health Organization (2012), the suicide rate among those aged 15-29 is the second highest among all causes of mortality [6].

This is particularly true in the United States. It would appear that depression is associated with a significant amount of mortality, as this shows. The same can be said about Bangladesh, where mental problems affect 16.05% of the adult population: the situation is the same there. The situation is the same in a great number of different countries as well. According to the findings of a recent thorough study [3], the frequency of mental diseases has been demonstrated to span a wide range, with estimations ranging anywhere from 6.5 to 31.0% among adults and 13.4 to 22.9% among children. These figures are based on the prevalence of mental diseases. The prevalence of a range of mental problems among adolescents in Bangladesh has only been investigated by a small number of researchers through a limited number of studies. For example, research conducted by the World Health Organization found that five (5%) percent of adolescents between the ages of thirteen and seventeen years experienced suicidal ideation and anxiety and that twenty-five percent of these adolescents were bullied by other students at school [7].

The vast majority of the research that was conducted through surveys concentrated on eating disorders [8], depressive symptoms and help-seeking behavior [9], obsessive-compulsive disorders [10], and intimate relationship violence [11,12]. Despite the findings of these more recent studies, there is a paucity of research on other elements of mental health, including feelings of worthlessness, bewilderment, fury, an inability to sleep, despair or hopelessness, and exhaustion or fatigue [13]. There is widespread agreement that each of these feelings is a warning sign for depression. It is especially crucial to emphasize these depressive symptoms in Bangladesh since parents and main caregivers in Bangladesh sometimes have the wrong understanding about how to care for the sad symptoms of school-aged children or teens [14]. It is feasible that future research that analyzes how depression symptoms emerge in vulnerable age groups may be advantageous to the design of focused therapeutic options that can be adapted to nations with low incomes and a high degree of conservatism, such as Bangladesh.

In Bangladesh, there are 16.4 million adolescents, which accounts for 10.2% of the total population of the country. In addition to being bullied, abusing narcotics, and smoking, teenagers in Bangladesh suffer from significant levels of mental health difficulties such as anxiety and loneliness, as found in the findings of several research studies [7]. There has only been one study done on teenagers living in rural and underprivileged sections of Bangladesh, and another one has only been done on adolescents living in the capital city of Dhaka [15]. This study was to evaluate the prevalence of mental health illnesses such as anxiety, stress, and depression among graduate-level female students in Bangladesh.

Methods and Materials

Study design and participants

A web-based cross-sectional survey was conducted among graduate students in Bangladesh from July 25 to August 28, 2023. Data were collected from female Bangladeshi students (24 years and above) who passed graduation in 2022. There was no restriction on which part of the country they belong to. Data was collected through an online survey using the convenience sampling technique. The sample size is calculated from the prevalence estimate using the following formula

$$n = \frac{z^2 p(1-p)}{d^2}$$

where, n = number of samples, z = 1.96 for 95% confidence level (CI), p = "best guess" for prevalence, and d = precision of the prevalence estimate. We assumed that the prevalence of mental health difficulties among graduate students might be 50%. The calculated sample size was 196 participants. Assuming a 20% non-response rate, we calculated the sample size as 236. The data collection instrument included questions on sociodemographic features such as age, socio-economic status, marital status, occupation, and monthly income. The Depression, Anxiety, and Stress Scale - 21 Items (DASS-21) is a set of three self-report scales designed to measure the emotional states of depression, anxiety, and stress [16].

The following cut-off points for depression were used, as recommended:

	Anxiety	Depression	Stress
Normal	0-7	0-9	0-14
Mild	8-9	10-13	15-18
Moderate	10-14	14-20	19-25
Severe	15-19	21-27	26-33
Extreme Severe	20+	28+	34+

Table 1: The prevalence of descriptive statistics of socio-demographic variables.

Variable	Frequency	Percentage (%)
Age		
24-30	178	75.42
Above 30	58	24.58
Socio Economic Status		

Lower Class	45	19.07
Middle Class	115	48.73
Higher Class	76	32.2
Marital Status		
Unmarried	141	59.75
Married	95	40.25
Occupation		
Student	86	36.44
Govt. Service	38	16.1
Private/NGO	90	38.14
Housewife	22	9.32
Monthly Income		
<= 20 k	87	36.86
20 k – 40 k	93	39.41
Above 40 k	56	23.73
Anxiety		
Normal	105	44.49
Mild	17	7.2
Moderate	57	24.15
Severe	21	8.9
Extremely Severe	36	15.25
Depression		
Normal	110	46.61
Mild	31	13.14
Moderate	54	22.88
Severe	24	10.17
Extremely Severe	17	7.2
Stress		
Normal	171	72.46
Mild	23	9.75
Moderate	20	8.47
Severe	11	4.66
Extremely Severe	11	4.66

Statistical analysis

In descriptive statistics, the prevalence was used to find the percentage of the characteristics of study populations. Bivariate analysis (Chi-Square test) had been carried out to examine the significant effect on Anxiety, Depression, and Stress (normal, mild, moderate, severe, and extremely severe) and associated factors. Data were tabulated according to categorical variables. The analyses were performed at a 95% confidence interval with $p < 0.05$. Analyses were conducted using STATA version 16.

Results

Table 1 shows that 75.42% of the respondents are aged 24-30 and almost half of the respondents belong to a middle-class family. Three-fifths of the respondents are unmarried. One-third of the respondents are remaining students. Only one-fourth of the female graduate students' monthly income is above 40k. 44.49%, 46.61%, and 72.46% of the respondent's anxiety status, depression status, and stress status are normal respectively. We observed that 55.51% had mild to extremely severe anxiety, 53.39% depression, and 27.54% stress.

Table 2 shows that between the two age categories younger age group has more anxiety compared to the elderly group and the association between anxiety status and age group is significant at a 5% level. Higher socio-economic status respondents have less anxiety compared to the other categories. Married graduate women have lower anxiety compared to unmarried ones. It also might be psychological causes. Housewives exhibit a higher prevalence of favorable mental health conditions in comparison to individuals employed in other occupations. Half of the respondents belong to the anxiety which has a monthly salary above 40k.

Table 2: The prevalence of Anxiety status by sample characteristics among graduate female students.

Variable	Anxiety Status					P Value
	Normal	Mild	Moderate	Severe	Extreme Severe	
Age						
24-30	39.33	8.99	26.97	9.55	15.17	0.0361
Above 30	60.34	1.72	15.52	6.9	15.52	
Socio Economic Status						
Lower Class	46.67	11.11	8.89	6.67	26.67	0.0499
Middle Class	42.61	6.09	30.43	11.3	9.57	
Higher Class	46.05	6.58	23.68	6.58	17.11	
Marital Status						
Unmarried	39.01	7.8	25.53	10.64	17.02	0.3165
Married	52.63	6.32	22.11	6.32	12.63	
Occupation						
Student	34.88	12.79	22.09	9.3	20.93	
Govt. Service	44.74	10.53	21.05	7.89	15.79	0.0007
Private/NGO	42.22	2.22	32.22	10	13.33	
Housewife	90.91	0	4.55	4.55	0	
Monthly Income						
<= 20 k	51.72	8.05	16.09	6.9	17.24	
20 k – 40 k	34.41	9.68	33.33	10.75	11.83	0.0722
Above 40 k	50	1.79	21.43	8.93	17.86	

Table 3 shows that between the two age categories younger age group has more depression compared to the elderly group and the association between depression status and age group is significant at a 5% level. Higher socio-economic status respondents have less depression compared to the other categories. Married graduate women have lower depression compared to unmarried ones. It also might be psychological causes. Housewives exhibit a higher prevalence of favorable mental health conditions in comparison to individuals employed in other occupations. Almost half of the respondents belong to depression which has a monthly salary above 40k.

Table 3: The prevalence of Depression status by sample characteristics among graduate female students.

Variable	Depression Status					P Value
	Normal	Mild	Moderate	Severe	Extreme Severe	
Age						
24-30	40.45	15.17	28.09	10.67	5.62	0.0006
Above 30	65.52	6.9	6.9	8.62	12.07	
Socio Economic Status						
Lower Class	46.67	17.78	15.56	11.11	8.89	
Middle Class	45.22	12.17	31.3	6.09	5.22	0.0952
Higher Class	48.68	11.84	14.47	15.79	9.21	
Marital Status						
Unmarried	39.72	14.18	26.95	11.35	7.8	0.1332
Married	56.84	11.58	16.84	8.42	6.32	
Occupation						
Student	34.88	18.6	26.74	13.95	5.81	
Govt. Service	57.89	10.53	15.79	7.89	7.89	0.0046

Private/NGO	42.22	12.22	26.67	8.89	10	
Housewife	90.91	0	4.55	4.55	0	
Monthly Income						
<= 20 k	51.72	11.49	19.54	11.49	5.75	
20 k – 40 k	38.71	18.28	30.11	5.38	7.53	0.082
Above 40 k	51.79	7.14	16.07	16.07	8.93	

Table 4 shows that between the two age categories younger age group has more stress compared to the elderly group and the association between stress status and age group is significant at a 5% level. Higher socio-economic status and lower socio-economic status respondents have less stress compared to the middle socio-economic. Married graduate women have lower stress compared to unmarried ones. It also might be psychological causes. Housewives exhibit a higher prevalence of favorable mental health conditions in comparison to individuals employed in other occupations. Almost three-fourths of the respondents belong to the stress which has a monthly salary above 40k.

Table 4: The prevalence of Stress status by sample characteristics among graduate female students.

Variable	Stress Status					P Value
	Normal	Mild	Moderate	Severe	Extreme Severe	
Age						
24-30	71.35	11.8	8.43	4.49	3.93	0.038
Above 30	75.86	3.45	8.62	5.17	6.9	
Socio Economic Status						
Lower Class	68.89	15.56	11.11	4.44	0	
Middle Class	76.52	7.83	5.22	5.22	5.22	0.4056
Higher Class	68.42	9.21	11.84	3.95	6.58	
Marital Status						
Unmarried	69.5	10.64	9.22	5.67	4.96	0.7765
Married	76.84	8.42	7.37	3.16	4.21	
Occupation						
Student	61.63	20.93	10.47	5.81	1.16	
Govt. Service	78.95	5.26	10.53	2.63	2.63	0.0017
Private/NGO	74.44	3.33	7.78	5.56	8.89	
Housewife	95.45	0	0	0	4.55	
Monthly Income						
<= 20 k	68.97	16.09	6.9	5.75	2.3	
20 k – 40 k	76.34	6.45	8.6	3.23	5.38	0.3218
Above 40 k	71.43	5.36	10.71	5.36	7.14	

Discussion

The primary aim of this research was to examine the various factors that contribute to the incidence of anxiety, depression, and stress among female graduate students in Bangladesh. Based on the data reported in Table 1, the present study reveals a higher occurrence of stress, anxiety, and signs of depression in comparison to a prior research endeavor that explored the psychological state of female graduate students in Bangladesh [17]. Based on the findings of the survey, a significant proportion of students, exactly 53.39 percent, disclosed the occurrence of diverse levels of depressive symptoms, whereas 55.51 percent revealed the manifestation of mild to extremely severe symptoms of anxiety. Moreover, a considerable percentage of students, specifically 27.5 percent, indicated that they encountered varying degrees of stress symptoms ranging from light to quite severe. The current investigation unveiled a reduced incidence of grief, worry, and stress among the student participants in comparison to other research conducted in Bangladesh [18-20]. The sample group of this study consisted of individuals with varying geographical regions and educational backgrounds, indicating the potential for differences in the observed incidence rate compared to earlier studies. The possibility exists that the outbreak could have played a role in the observed difference. The escalation of the disease can be ascribed to pressures such as parental expectations,

anxiety about future opportunities, and the greater incidence of mental health disorders among females compared to males. The only variable that did not demonstrate a statistically significant correlation with both experiences of melancholy and unease was related to apprehensions about future occurrences.

In socioeconomically poor areas such as Bangladesh, individuals often overlook factors related to their mental well-being. Insufficient scholarly investigation has been undertaken to ascertain the extent and ramifications of sadness, stress, and anxiety in Bangladesh, specifically in relation to the younger demographic. The current body of research predominantly concentrates on adults, resulting in a notable information deficit regarding the comprehension of these psychological phenomena among different age cohorts within the nation. In light of the prevailing conditions, the primary aim of this study endeavor was to ascertain and assess potential sociodemographic and lifestyle risk factors that could potentially be linked to symptoms of depression among adults aged 24 years and older in Bangladesh. The veracity of this discovery was substantiated by a cohort of 236 female postgraduate students.

In the context of Bangladesh, women face limitations in participating in activities that contribute to their mental well-being as a result of conforming to traditional societal standards prevalent in the nation. It is common for parents to exercise a considerable amount of influence on their daughters, encouraging them to hide any mental health concerns before marriage. This is done to improve their daughters' capacity to effectively handle potential difficulties that may arise inside their future in-laws' households. Adolescent females are confronted with a wide range of problems, anxieties, and pressures that originate from their familial relationships. The occurrence of sexual abuse perpetrated against women can be ascribed to the insufficient condition of law enforcement and governance inside the nation. The observed inequalities may be attributed to the differential challenges of differing complexity that girls and boys of similar ages confronted.

Limitation

This study has limitations. The cross-sectional investigation cannot show causal links between depression, stress, stress symptoms, and related factors. The self-reported questionnaire in this study may also introduce recollection bias. The study used convenience sampling, which may not accurately reflect community health. More representative samples are needed to generalize findings to the overall population. Despite these limitations, this study provided fresh findings from a vulnerable population group and suggests more research into the causes of graduate female students' mental health issues.

Conclusion

This investigation revealed a significant prevalence of depressive symptoms, anxiety, and stress among Bangladeshi female graduate students. The study revealed that female graduate students have a higher prevalence of depressive and anxiety symptoms than the general population. There is evidence that graduate students experience psychosomatic injuries due to melancholy and stress disorders, which can be attributed to chronic fatigue and exposure to multiple stresses. Identifying these innovative and significant discoveries has the potential to inform the development of targeted mental health interventions for this specific population. In addition, these findings can be used to develop strategies and action plans aimed at nurturing a student-friendly and compassionate community or family environment. These initiatives seek to improve the mental health of those who are most at risk by involving their families actively.

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