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Depression and Depression Literacy among University Students in Bangladesh: A Cross-sectional Study

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Abstract

Depression is reported as a critical mental health issue among young university students in Bangladesh. This study aimed to determine the prevalence of depression and depression literacy level among university students in Bangladesh. An online survey-based cross-sectional study employed a convenience sampling method to gather data from conveniently selected university students. Besides demographic and other important information related to lifestyle, validated instruments, such as the 9-item Patient Health Questionnaire (PHQ-9), and the Bangali version of the Depression Literacy Questionnaire (D-Lit), were used. To determine significant associations, statistical analyses (chi-square tests and independent two-sample t-tests) were conducted using SPSS. The analysis revealed that girls were more likely to report depressive symptoms than boys. The students have a fairly low average depression literacy. Physically inactive and spend a lot of time on social media have higher levels of depression. Moreover, girls were less aware of depression than boys, and social media behaviours influenced the level of knowledge as well. Overall, female students showed less understanding of depression and vulnerability toward symptoms compared to males. The study exposed insights on gender disparities, lifestyle factors, and knowledge gaps about depression prevalence and depression literacy among Bangladeshi university students.

1. Introduction

Depression is a major public health problem in the world with an estimated 300 million people affected worldwide and is equivalent to 4.4% of the world population (Chodavadia et al., 2023). It is defined by lasting sadness, lack of interest, sleep problems, weight loss or gain, decreased energy and activity, and difficulty focusing, and is now widely seen as an invisible but ubiquitous developmental challenge of this century. Its developmental importance has been acknowledged by the United Nations, which has placed depression in the Sustainable Development Goals (SDGs) due to its tremendous economic and social burden (Kamruzzaman et al., 2024). The importance of early identification and intervention is highlighted by the projected productivity gains from scaled-up treatment of depression and anxiety disorders in the hundreds of billions globally.

University students are one of the most vulnerable groups, with prevalence rates of depressive symptoms from 10% to 85%, and a weighted mean of 30.6% (Jorm, 2012). There is a significant variation between regions: prevalence of depressive symptoms among Chinese university students has been reported at 23.8% to 28.4%, and across low and middle income countries generally, at 24.4% (Akhtar et al., 2020). High prevalence rates of up to 42.66% have been recorded in Pakistan, and similar high prevalence rates are now being reported in other parts of South Asia. The university setting is a psychological pressure cooker, with its academic demands, social changes, identity development and routine disruption.

Mental health issues are under-resourced and under-prioritised in Bangladesh as a public health problem, and are highly stigmatised. The stress and mental health burden among the students of

universities in Bangladesh is high, and the rate of depressive symptoms is almost half of the students, and consistently highest among female students (Koly et al., 2021). This vulnerability is exacerbated by context-specific stressors unique to Bangladesh. They involve political violence and ragging – teasing, humiliation and coercion of junior students by senior students that results in physical, psychological and emotional harm. These institutional factors also exacerbate mental health issues in the school environment and increase the likelihood of clinical distress (Townsend et al., 2019). Low awareness and a continued social stigma are the main causes of underdiagnosis and undertreatment of depression in this population.

The understanding and beliefs around depression that help identify, manage or prevent depression are referred to as depression literacy (Jorm, 2012). Depression literacy is one of the components of mental health literacy, and involves six interrelated components: recognising depressive states, knowing risk factors and causes, being aware of self-help strategies, knowing professional help available, attitudes that facilitate recognition and help-seeking, and access to mental health information. A correlation between literacy and symptom recognition, stigma reduction, and professional help-seeking has consistently been shown (Siddik et al., 2023). Psychoeducation has been demonstrated to have a positive effect on literacy and psychological health, but its implementation is limited among university students from Bangladesh due to self-stigma and lack of interest in professional mental health care (Akhtar et al., 2020).

Although there has been an increasing awareness of this dual burden, studies that simultaneously assess both the prevalence of depressive symptoms and depression literacy among Bangladeshi university students are still limited, especially those examining the role of lifestyle-related factors like social media and physical activity. The present study was thus aimed at: (i) estimating the prevalence of depressive symptoms in university students and their relationship with socio-demographic and lifestyle factors; and (ii) evaluating depression literacy and its differences across the main socio-demographic variables, especially gender. The findings will be used to inform targeted mental health interventions and policy in higher education settings in Bangladesh, at multiple levels.

2. Materials and Methods

2.1 Study Design, Site, and Participants

The study was a cross sectional study of the university students of six administrative divisions of Bangladesh namely Dhaka, Khulna, Rajshahi, Chattogram, Barisal and Sylhet. The study was conducted following the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for cross sectional studies and was conducted from 01 September to 30 November 2026. Inclusion criteria were: being a current student of the university; age of 18 years or older; and consenting to participate in the study. The sampling technique used was a convenience sampling technique, as there was no comprehensive sampling frame.

Based on a 50% prevalence, 95% confidence level and a 5% margin of error, the minimum sample size was calculated using Cochran's formula ($n = Z^2p(1-p)/e^2$) equating to 384 participants. Of these, 408 were completed and appropriate responses, and were subsequently included in the analysis. The online survey was sent via academic and social networks in public and private institutions. A significant number of respondents were from universities located in Dhaka, where the majority of the population is concentrated and where there is greater access to the internet, but respondents were also from universities across all six divisions.

2.2 Measures

Data gathered were socio-demographic and lifestyle factors such as age, gender, monthly family income, living status, smoking habit, daily social media usage and physical activity. The physical activity was operationalised as a binary variable to reflect the overall level of physical activity.

The Bangla Depression Literacy Questionnaire (D-Lit) was used to measure depression literacy, which was adapted from the original 22-item depression literacy questionnaire (Arafat et al., 2017) and comprised 20 items. For each question, the respondents are asked to choose one of three answers: ‘true’, ‘false’, ‘don't know’ and will receive 1 point if their answer is correct, 0 points if it is incorrect or ‘don't know'. The total score is out of 20, with higher scores reflecting higher depression knowledge. The scale encompasses symptomatology (biological, cognitive, behavioural and psychotic dimensions), impact and management. This is found acceptable internal consistency of Bangla D-Lit in the present sample (Cronbach’s $\alpha = 0.78$) which is consistent with the previous validation done in the Bangladeshi context.

The 9-item Patient Health Questionnaire (PHQ-9) was used to assess depressive symptoms, which is a widely used and psychometrically sound measure with nine items that align with the diagnostic criteria for major depressive disorder in the DSM-IV and DSM-5. A total score of 0-27 is achieved for each item with scores of 0 = not at all, 1 = sometimes, and 3 = nearly every day. Cut-off scores of ≥10 were used to identify participants as having depressive symptoms (Manea et al., 2012). The internal consistency of the PHQ-9 was high in the present sample (Cronbach's $\alpha = 0.86$).

2.3 Statistical Analysis

Data were analysed with Microsoft Excel and SPSS software and the results were presented following SAMPL guidelines. Descriptive statistics consisted of means, standard deviations, frequencies and percentages. Categorical socio-demographic variables were compared to the binary outcome of depressive symptoms using chi-square tests. Independent two-sample t-tests were employed to determine differences in mean D-Lit scores between subgroups. Between-group comparisons of depression literacy were examined using bivariate analyses, but are presented as associations and not causal relationships.

2.4 Ethical Clearance

The study was approved by Khwaja Yunis Ali University, Bangladesh (KYAU/DEAN/EGC/2024/12) and was carried out as per the Declaration of Helsinki (1975, updated in 2013). All participants gave written informed consent after being fully informed of the study goals, methods, risks, and the right to withdraw at any time without penalty. All participation was voluntary. All data were safely collected and only used by the research team. No monetary or non-monetary incentives were given.

3. Results

3.1 Socio-demographic Profile and Depressive Symptoms

Table I: Characteristics of study participants

Variable	Category	n (%)	Depressive Symptoms (%)	p-value
Age (years)	18–24	198 (48.53)	46.30	0.338
	>24	210 (51.47)	53.70	
Gender	Male	205 (50.25)	45.37	0.037*
	Female	203 (49.75)	54.63	
Monthly Income (BDT)	≤30,000	204 (50.00)	53.70	0.113
	>30,000	204 (50.00)	46.30	
Living Status	With family	235 (57.60)	59.26	0.471
	Apart	173 (42.40)	40.74	
Smoking	Smoker	83 (20.34)	19.91	0.817
	Non-smoker	325 (79.66)	80.09	
Social Media (hrs/day)	1–3 hrs	186 (45.59)	39.35	0.007*
	>3 hrs	222 (54.41)	60.65	
Physical Activity	Active	157 (38.48)	33.33	0.023*
	Inactive	251 (61.52)	66.67	

**p<0.05 denotes statistical significance; Depressive Symptoms (%) = proportion of those who scored ≥10 on PHQ-9 within each category*

Among the 408 participants, 48.53% (n=198) were aged between 18 and 24 years, while 51.47% (n=210) were older than 24 years. Gender distribution was almost equal with 50.25% (n=205) male and 49.75% (n=203) female students. As far as monthly family income is concerned, half of the respondents (50.00%, n=204) said that they earn 30,000 BDT or less per month and the other half said that they earn more than 30,000 BDT per month. Most students (57.60%, n=235) lived with family and 42.40% (n=173)

lived apart. In terms of smoking, 20.34% (n=83) identified as smokers and 79.66% (n=325) as non-smokers. The use of social media was varied, with 45.59% (n=186) using social media for 1-3 hours a day and 54.41% (n=222) using social media more than 3 hours a day. 38.48% of people (n=157) reported physical activity, while the majority (61.52%, n=251) reported no regular physical activity.

Several significant associations were found between these variables and depressive symptoms (see Table I). There was no significant relationship between age group and depressive symptoms ($p>0.05$). A significant gender difference was observed, with female students showing a higher percentage of depressive symptoms than male students (54.63% vs. 45.37%, $p<0.05$), indicating that females experienced a higher burden of depression. There was no significant relationship between monthly family income, living status or smoking habit with depressive symptoms ($p>0.05$ for all). The proportion of depressive symptoms was significantly higher in social media users who used social media more than 3 hours per day (60.65%) compared to those who used social media between 1 and 3 hours per day (39.35%) ($p<0.05$). The physical inactivity was also significantly associated with depressive symptoms: Students who did not have regular physical activity accounted for 66.67% of the students who had depressive symptoms, while 33.33% of the students who had regular physical activity accounted for the students who had depressive symptoms ($p<0.05$).

3.2 Depression Literacy

Table II: Depression Literacy Among Study Participants (n=408)

Item	Statement	Correct Response n (%)
Q1	People with depression speak in a rambling, disjointed way	26.7
Q2	People with depression may feel guilty when not at fault	37.3
Q3	Reckless and foolhardy behaviour is a common sign of depression	30.1
Q4	Loss of confidence and poor self-esteem may be symptoms of depression	33.1
Q5	People with depression often hear voices that are not there	30.4
Q6	Sleeping too much or too little may be a sign of depression	82.4
Q7	People may move more slowly or become agitated as a result of depression	77.0
Q8	Depression does not affect memory and concentration	30.4
Q9	People may move more slowly or become agitated because of their depression	76.0
Q10	Clinical psychologists can prescribe antidepressants	77.7
Q11	Moderate depression disrupts a person's life as much as multiple sclerosis or deafness	37.3
Q12	Most people with depression need to be hospitalised	77.2
Q13	Many famous people have suffered from depression	75.0
Q14	Many treatments for depression are more effective than antidepressants	75.5
Q15	Cognitive behavioural therapy is as effective as antidepressants for mild-to-moderate depression	41.4
Q16	Of all alternative and lifestyle treatments, vitamins are the most helpful	21.6
Q17	People with depression should stop taking antidepressants as soon as they feel better	28.2
Q18	Antidepressants are addictive	22.8
Q19	Antidepressant medications usually work straight away	77.7
Q20	All antidepressants have a sedative property, impairing daytime activity	45.8

The Bangla D-Lit (Table II) showed a complex pattern of knowledge in the symptom recognition, clinical knowledge and treatment-related areas. Participants were more aware of the physical and observable symptoms of depression. Most (82.4%) recognised that too much or too little sleep could be a sign of depression, while 77.0% identified that people can move slower or get agitated as a result of depression.

Likewise, 77.7% correctly said that clinical psychologists were not allowed to prescribe anti-depressants and 77.2% disagreed that most people with depression required hospitalisation and 75.5% correctly stated that many treatments for depression were not more effective than anti-depressants.

However, there was significant knowledge gaps in relation to cognitive symptoms and pharmacological treatment. Correctly identified that depression affects memory and concentration: 30.4%. Likewise, less well-known symptoms were poorly known: only 26.7% answered the question regarding disjointed speech correctly, 30.1% the question regarding reckless behaviour as a symptom and 33.1% the question regarding loss of confidence and poor self-esteem. Importantly, 22.8% of people correctly stated that antidepressants are not addictive, while 28.2% correctly disagreed with the notion that patients should quit antidepressants when they feel better. The gaps in knowledge were identified as being related to treatment, and are clinically relevant because they are likely to result in poor medication adherence and to maintain avoidance of pharmacological treatment.

3.3 Depression Literacy by Subgroup

Table III: Differences in Depression Literacy (D-Lit) Scores Between Subgroups

Variable	Category	Mean Score (SD)	t-value	p-value
Age (years)	18–24 / >24	9.59 (3.42) / 9.40 (3.18)	0.598	0.550
Gender	Male / Female	10.25 (3.13) / 8.72 (3.29)	4.82	<0.001*
Monthly Income (BDT)	≤30,000 / >30,000	9.74 (3.10) / 9.24 (3.47)	1.53	0.126
Living Status	With family / Apart	9.63 (3.31) / 9.31 (3.27)	0.96	0.335
Smoking	Smoker / Non-smoker	9.92 (3.29) / 9.82 (3.30)	1.32	0.189
Social Media (hrs/day)	1–3 hrs / >3 hrs	9.02 (3.38) / 9.88 (3.18)	2.67	0.008*
Physical Activity	Active / Inactive	9.45 (3.21) / 9.52 (3.36)	0.21	0.830
Depression Status	Yes / No	9.52 (3.35) / 9.47 (3.25)	0.09	0.935

**p<0.05 denotes statistical significance; Mean scores presented as Group 1 / Group 2 matching Category column*

The overall mean D-Lit score for all participants was about 9.5/20, which suggests a relatively low level of depression literacy among the sample. When the data were analysed by subgroups (Table II), the age group between 18 and 24 years had a score of 9.59, which was slightly higher than the age group older than 24 years (9.40), but not statistically different (p=0.550). Gender, however, was highly significantly associated with literacy, with male students scoring much higher than female students (10.25 vs. 8.72; p<0.001), indicating a significant gender gap in depression knowledge.

The mean score of participants from lower income groups (≤30,000 BDT) was slightly higher than that of the higher income groups (9.74 vs. 9.24) but this difference was not statistically significant (p=0.126). Students who lived with their family also had slightly higher scores than those who lived away from home (9.63 vs. 9.31; p=0.335), while smokers had slightly higher scores than non-smokers (9.92 vs. 9.82; p=0.189), but neither were significant. Social media use was significantly correlated with literacy, with students who use social media more than 3 hours daily having significantly higher scores than those who use social media 1-3 hours daily (9.88 vs. 9.02; p=0.008). There was no significant difference in literacy scores between the physical activity groups (9.45 vs. 9.52; p=0.830), nor between those with or without depressive symptoms (9.52 vs. 9.47; p=0.935), indicating that depression literacy and symptom experience are relatively independent in this sample.

4. Discussion

The current study confirms a high prevalence of depressive symptoms in university students in Bangladesh, with more than half of the students scoring above the cut-off on the PHQ-9 to indicate depressive symptoms. This is similar to and in some cases higher than reported rates in other similar settings, such as a global weighted mean of 30.6% (Jorm, 2012) and high rates in Pakistan and other South Asian contexts (Akhtar et al., 2020). The higher rates seen in the current sample may be due to the interplay of academic stressors, socio-political stressors and institutional stressors like ragging in the context of the Bangladeshi university system.

As expected, females were significantly more likely to report depressive symptoms than males, consistent with the literature around the world and locally. This gender imbalance has been explained by the unequal distribution of traditional gender roles, concerns about safety, lack of autonomy and expectations in society by women in the context of Bangladesh (Townsend et al., 2019). These structural inequities are likely to exacerbate the vulnerability of female university students to clinical depression, which should be addressed specifically by institutions.

Other factors that were found to be significant correlates of depression in this study were behavioural factors. There was a significant correlation between excessive social media use (more than 3 hours per day) and a higher prevalence of depressive symptoms. It aligns with theoretical models and empirical studies indicating social media use can lead to social comparison, exposure to cyberbullying, internalisation of unrealistic expectations and a sense of inadequacy and low self-worth (Keles et al., 2020). A recent meta-analysis of RCTs found that social media use reduction was associated with statistically significant reductions in depression symptoms (May et al., 2025), adding to the evidence for specific social media habits interventions. Regular physical activity, on the other hand, served as a strong protective factor: physically active students were significantly less likely to experience depressive symptoms, a result in line with the large body of evidence on the antidepressant effect of exercise, which is believed to be due to the release of endorphins, improved sleep and enhanced social interaction (Rebar et al., 2015).

The overall depression literacy level in the sample was relatively low (mean D-Lit score ~9.5/20). Participants had generally good knowledge of physical and visible signs of depression (sleep disturbance, psychomotor changes) and significant gaps in knowledge related to cognitive symptoms and pharmacology. Misconceptions regarding antidepressants were especially common, with less than 1/4 of the participants correctly stating that antidepressants are not addictive, and less than 1/3 stating that patients should not stop taking antidepressants when they feel better. Such misconceptions have clinical significance because they may prevent people from starting treatment and may negatively impact adherence to treatment among those who do seek treatment (Eisenberg et al., 2012).

It is important to note that there is a substantial difference between the depression literacy of male and female students, with the male students' scores being significantly higher. This difference could be attributed to the differential access to mental health information, where female students are more likely to be exposed to stigma-related barriers to accessing mental health information, and less likely to be exposed to mental health campaigns online (Akhtar-Danesh and Landeen, 2007). The fact that depression is more common among females and literacy is less among them is a compounded vulnerability and a critical need for gender-specific psychoeducation programs. Interestingly, the more social media was used, the higher the D-Lit scores were, indicating that social media is also a medium for health information, despite the mental health risks that come with excessive use of social media. This discovery can be described as a digital paradox, as social media can increase the risk of depressive symptoms while also being a means of health literacy improvement (May et al., 2025).

The results are consistent with Mental Health Literacy Theory, which suggests that improving the literacy of individuals will lead to earlier and more accurate symptom detection, lower levels of stigma and adaptive coping and help-seeking behaviours (Jorm, 2012). The Theory of Planned Behaviour offers an alternative perspective, detailing how social attitudes, subjective norms, and perceived behavioural control influence intention and decision to seek professional psychological assistance. The lack of significance of the income and smoking variables in the present sample may be due to the homogeneity of the university student context and the predominant effect of gender and digital behaviour in this sample.

The results of this study justify a multi-level intervention approach. Awareness campaigns specifically geared towards female students and other low-literacy groups are required, especially because women are more vulnerable and less likely to have access to mental health information. These should be complemented by formal psychoeducational sessions to dispel entrenched myths surrounding antidepressant use, increase awareness of alternative psychotherapeutic treatments (e.g. CBT) and promote positive attitudes towards seeking help from a professional. University policies and administrators need to acknowledge mental health literacy as a core element of student well-being, rather than an add-on, to be integrated into the academic curriculum and institutional support structures (Eisenberg et al., 2012).

There are a few caveats to note. The cross-sectional design only collects data at one point in time and does not allow for making causal inferences between the identified variables and depression outcomes. Self-reported information, including on lifestyle behaviours like social media and physical activity, can have social desirability and recall bias. Although this approach was justified on practical grounds, because of the lack of an exhaustive sampling frame for the students in Bangladeshi universities, the results may not be generalisable to the wider student population of Bangladeshi universities and to students in non-urban or resource-poor institutional environments. Future studies should use longitudinal designs, include multi-source data including institutional records and validated activity monitors, and try to find more representative sampling methods to build on and extend the current findings.

5. Conclusion

This study is a revealing account of the mental health crisis in the Bangladeshi university system, which is a complex mix of gendered societal pressures, excessive use of social media and pervasive misconceptions about the use of drugs. Current outreach efforts have not sufficiently reached female students, who are at the greatest risk for depression and have the lowest literacy rates. Resilience can be achieved through physical activity, while awareness can be gained through health information online. As a risk factor for depression, and as a means to enhance literacy, the digital double-edged sword of social media needs to be carefully managed in the development of future interventions. These relationships are indicative, not definitive, due to the cross sectional and self-reported nature of the data, but the relationships do offer a strong call for action. Mental health responses in Bangladesh need to go beyond generic awareness-raising campaigns and instead be culturally sensitive, evidence-informed and grounded in a policy framework that can help to challenge gender-based stigma, debunk pharmacological myths and establish mental health literacy as a core component of the education and wellbeing of students.

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