Research Article

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Social Media-Related Factors Influencing Depression among Young Adults in Rajshahi City, Bangladesh

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Abstract

In recent years, the proliferation of social media platforms has revolutionized communication and interaction patterns, particularly among the youth population. However, alongside its benefits, concerns have been raised about its potential negative effects on mental health. Social media has profoundly impacted mental health, especially among young adults, leading to heightened feelings of loneliness, inadequacy, and social comparison. This study examines social media's role in depression among young adults in Rajshahi City, Bangladesh. A descriptive cross-sectional study was conducted among 450 respondents in the study area. A pretested, semi-structured, self-administered questionnaire collected media-related variables, while the Patient Health Questionnaire-9 (PHQ-9) assessed depression status. Data analysis included frequency distribution, inter-item correlation matrix for PHQ-9, Chi-square test, and Cramer's V. The results revealed that 57.8% of the respondents had depression, with age and time spent on social media being positively associated. The percentage of depressed females (62.1%) was higher than that of males (55.2%). Additionally, depression status varied based on the social media platform used, the type of accounts followed, and the content consumed. These findings highlight that younger age and using platforms like Facebook, Twitter, and Pinterest, as well as following accounts related to celebrities, gaming, humor, and animals, are linked to higher rates of depression. These findings underscore the complex relationship between social media engagement and depression, emphasizing the need for targeted mental health interventions,

particularly among younger users and those engaging with specific content types. To mitigate social media's negative impact, mental health resources and parental guidance are crucial. Social media platforms should include well-being features, and gender-specific interventions are needed, especially as females are more affected. Digital literacy programs should be implemented in schools, and parents should guide healthy online habits.

Keywords: Social media, Mental health interventions, Depression, Young adults, Patient health questionnaire-9

What was known

- The current prevalence of depression among young adults (females: 42.9%, males: 25.7%) in Bangladesh shows a significant gender disparity.
- The associated factors for depression include social media usage, types of accounts followed, time spent on social media, age, gender, academic status, and family background

What's new and next

- The study found that 57.8% of respondents experienced depression, with higher rates among females (62.1%) compared to males (55.2%).
- Age and time spent on social media were positively associated with depression, with rates varying based on the platform used and the types of accounts followed.

Introduction

With Social media's smooth integration into our daily lives, a large segment of the world's population now relies heavily on it for information, communication, and enjoyment. Social media, once hailed as a revolutionary tool for global connectivity and communication, is now increasingly being questioned for its potential negative impact on mental health.[1] In recent years, there has been growing concern about the widespread influence of platforms designed to facilitate interaction and information sharing.[2] Social media engagement's quick pleasure contributes to addictive use. This addictive use of social media, characterized by an overwhelming concern for it, an insatiable urge to log in, and a strong commitment to staying engaged, consumes so much time and energy that it interferes with other significant aspects of life.[3] Numerous research on the addiction and the effects of social media have been done, and the results suggest that extended usage of social media may be linked to problems like stress, anxiety, depression, loneliness, low self-esteem and poor sleep quality.[4, 6]

Social media provides an idealized picture of people's lives, which encourages ongoing social comparison. Young people may compare themselves to others, which can result in low self-esteem and feelings of inadequacy.[7] According to many researchers, people are becoming the victims of lower self-esteem (which ultimately results in self-loathing) because of the steep increase in the usage of social media.[8] Moreover, there is constant pressure to uphold an idealized online identity, which can lead to fear of missing out (FOMO) and an overpowering need to present a flawless life.[9] The genuine difficulties that young adults encounter are frequently hidden by this facade, making it challenging for them to ask for help. Additionally, spending too much time on social media might lead to a sedentary lifestyle, which is associated with less restful sleep.[10]

The nighttime social media usage can impact users' sleep hygiene by lengthening their sleep onset latency and shortening their sleep amount.[12] Additionally, individuals on social media might be exposed to a steady stream of information, including unpleasant news, comparisons to others, and cyberbullying, which cause stress and anxiety levels to rise and making it more difficult to unwind and go to sleep.[13] A study conducted by Deepa, Priya[14] showed how the use of social media affects students' mental health. The majority of respondents in the study reported utilizing several social networking sites and allocating more than four hours per day to these activities. This study discovered a relationship between the number of social networking sites used and depressive symptoms. Furthermore, the research findings indicate a robust correlation between the manifestations of anxiety and depression provided more evidence that there was a connection between being more active on social networking sites than in real life and feeling nervous. Because of this, students' mental health, including depression and anxiety, is being negatively impacted by increased use of social media, the quantity of social networking sites, and excessive time spent on them. Waqas, Khurshid, Ali, Khaliq[15] in their study examined the association of social media usage with depression among the college students. Results reveal that there exists positive and significant relationship between social media usage and depression among the college students. Al Mamun, Griffiths[16] conducted a pilot study in Bangladesh to investigate the correlation between a certain type of social media addiction (i.e., "Facebook addiction") and the factors that support it by using the data taken from a sample of 300 students from the University of Dhaka, Bangladesh. They found that depression is one of the main comorbid variables among Bangladeshi students, and the danger of Facebook addiction seemed to be a serious issue.

Based on the rising concerns about the impact of social media on mental health, this study seeks to address the following research question: What is the association between social media-related factors and depression among young adults in Rajshahi City, Bangladesh? Most previous studies on social media and depression focused on students or single platforms like Facebook, neglecting the broader young adult population and multiple social media platforms. They also overlooked the impact of different types of content and accounts followed. Additionally, small sample sizes and limited geographic coverage restricted the generalizability of findings. This study addresses these gaps by exploring the association between various social media factors and depression among young adults in Rajshahi City, Bangladesh. In contrast, the current study aimed to investigate depression prevalence and social media factors among young adults beyond just students. This study considered multiple social media sites and was conducted specifically in Rajshahi City, Bangladesh.

Materials and Methods

Study participants, area, and sampling technique:

Data were collected from young adults aged 18 and above, including both students and non-students, in Kazla, Talaimary, Shaheb Bazar, and Bindur More areas of Rajshahi City, Bangladesh, who had internet access. Respondents were selected through face-to-face interviews. Due to time and financial constraints, purposive sampling technique was employed. A total of 450 respondents' information were collected between October, 2023 and February, 2024.

Sample size: The sample size selection was determined using the following formula[17]:

$$n = \frac{Z^2 p(1-p)}{\epsilon^2} = \frac{Z^2 pq}{\epsilon^2}. \quad (1)$$

In Eq. (1), n = sample size, Z = tabulated value = 1.96 (at 5% level of significance), p = portion of social media users, q = 1-p, and ϵ = margin of error (5%) = 0.05. Assuming that p = 0.46 and q = 0.54. By using this formula, the sample size should be 381 with 95% confidence interval. But for the betterment of research, 450 respondents were selected for this study.

Procedure for gathering data: Self-administered questionnaires were given to participants once the purpose of the study was explained and their consent was obtained. The data for this study was obtained by the trained investigators. Demographic characteristics (age and gender), name of the social media sites the respondents use, time spent and the type of

accounts/contents they follow on social media and a standard scale to assess depression were included in the questionnaire.

Patient Health Questionnaire-9 (PHQ-9): The PHQ-9 is a nine-item self-report instrument, with each question graded on a 4-point scale ranging from 0 to 3 ("not at all" to "nearly every day"), resulting in a total score range of 0-27.[18] Higher scores indicate greater severity of depression. The scale has strong psychometric properties, including a Cohen kappa value of 0.65, and exhibits high sensitivity and specificity at 75% and 90%, respectively. In this investigation, a score of ≥10 was used to identify depression, utilizing the Bengali version of the questionnaire.[18,19]

Statistical analysis:

In this study gender, age, social media platforms, time spending on social media etc. are the independent variables and respondents' depression status is the dependent variable. Frequency and percentage distribution of the variables were calculated by the descriptive analysis. The data have been coded in code sheets according to a comprehensive code plan (Table 1).

Table 1 Coding for different variables

Selected variables	Coding
Gender	1 = male, 2 = female
Age	1= ≤20, 2= 21-24, 3= ≥25
Usage of social media (Facebook, YouTube X, Instagram, Pinterest, Others)	1= Yes, 2= No
Time spent on social media (in hours)	1= 1-5, 2= 6-10, 3= ≥11
Is it (amount of time spent on social media) good for health?	1= Yes, 2= No
Follows on social media (Family/Friends, News/Entertainment, Celebrity/Model, Gaming accounts, Funny accounts, Animals/Birds, Others)	1= Yes, 2= No
Severity of depression	1= Minimal depression, 2= Mild depression, 3= Moderate depression, 4= Moderately severe depression, 5= Severe depression
Depression status	1= Absent, 2= Present

To test the association between dependent variable and different independent variables, we have used Chi-square (χ^2) statistic. For this particular problem we observe that the null hypothesis might be accepted at the 5% level of significance when the Pearson χ^2 test is used. Another bivariate analysis, Cramer's V[20] was also used to measure the association between with

the strength of association between depression status and social media related characteristics of the respondents. Unlike the χ^2 test, which only indicates the presence of an association, Cramer's V quantifies its strength, offering a clearer understanding of the relationship. The value of Cramer's V lies between 0 and 1 which is based on χ^2 value. To interpret Cramer's V, the following approach is used: $V \in [0.1, 0.3]$, weak association; $V \in [0.4, 0.5]$, medium association; and V>0.5, strong association.[21] Cronbach's α is used to assess the internal consistency or reliability of a set of scale or test items.[22] A commonly accepted threshold, $\alpha \geq 0.70$, indicating acceptable reliability, though this can vary depending on the context and the construct being measured.[23] Based on a study, some psychometric indicators (mean, standard deviation, item-total correlation, Cronbach's α if item deleted, Skewness and Kurtosis) and inter-item correlation matrix for each of the PHQ-9 items are calculated for testing validity and reliability of PHQ-9[24]. The data were analyzed using IBM SPSS Statistics version[16].

Results

We begin with a brief overview of the study population with respect to basic characteristics. Table 2 contains the descriptive statistics for every variable. Results show that among 450 respondents, a higher percentage are male (62.4%) whereas 37.6% are female. We see that, the highest frequency of age of the respondents' is in the age group 21-24 years and lowest in age 25 years and above. When we tried to check the depression status of our respondents, we found that depression is absent among 42.2% and is present among 57.8% of the respondents. Some psychometric indicators and inter-item correlation matrix for each of the PHQ-9 items are shown in Table 3 and Table 4, respectively. From Table 3, we see that the means range from 1.11 to 1.50 and the standard deviation range from 1.175 to 1.279. The whole PHQ-9's Cronbach's α was 0.843. There were no negative values in the inter-item correlation matrix (Table 4). All values of Skewness are positive, while all values of Kurtosis are negative.

The study found a significant difference in the distribution of depression status across age groups (≤20, 21-24, and ≥25), with a *p*-value of 0.006, lower than the typical significance threshold of 0.05. The Cramer's V value of 0.152 indicates a very small association between depression status and age groups. However, there is no significant association between depression status and gender (p<0.147).

Table 2 Background characteristics of the respondents, *n*=450

Variables	Levels	Frequency, *n* (%)
Age (in years)	≤20	181 (40.2)
	21–24	219 (48.7)
	≥25	50 (11.1)
	Mean: 21.63, Minimum: 18, Maximum: 37	
Gender	Male	281 (62.4)
	Female	169 (37.6)
Uses of social media	Facebook	420 (93.3)
	YouTube	364 (80.9)
	X (Twitter)	57 (12.7)
	Instagram	161 (35.8)
	Pinterest	50 (11.1)
	Others	131 (29.1)
Time spent on social media (in hours)	1–5	264 (58.7)
	6–10	159 (35.3)
	≥11	27 (6.0)
	Mean: 5.56, Minimum: 1, Maximum: 15	
Is it (amount of time spent on social media) good for health?	Yes	57 (12.7)
	No	393 (87.3)
Follows on social media	Family/Friends	325 (72.2)
	News/Entertainment	324 (72.0)
	Celebrity/Model	138 (30.7)
	Gaming accounts	80 (17.8)
	Funny accounts	143 (31.8)
	Animals/Birds	114 (25.3)
	Others	96 (21.3)
Severity of depression	Minimal depression (0–4)	89 (19.8)
	Mild depression (5–9)	101 (22.4)
	Moderate depression (10–14)	92 (20.4)
	Moderately severe depression (15–19)	90 (20.0)
	Severe depression (≥20)	78 (17.3)
Depression status	Absent (≤9)	190 (42.2)
	Present (≥10)	260 (57.8)

Table 3 Mean, standard deviation, item-total correlation, Cronbach's alpha if item deleted, Skewness and Kurtosis of the Patient Health Questionnaire-9 (PHQ-9)

Items	Mean	SD	Corrected item-total correlation	Cronbach's α if item deleted	Skewness	Kurtosis
I_1	1.22	1.216	.574	.824	.447	-1.389
I_2	1.20	1.203	.556	.826	.519	-1.293
I_3	1.35	1.175	.515	.831	.337	-1.381
I_4	1.27	1.233	.477	.835	.408	-1.448
I_5	1.50	1.277	.460	.837	.087	-1.681
I_6	1.11	1.272	.557	.826	.580	-1.388
I_7	1.33	1.279	.654	.815	.269	-1.620
I_8	1.34	1.267	.647	.816	.259	-1.604
I_9	1.24	1.214	.563	.826	.422	-1.402

Notes: SD=Standard deviation, I_1= Little interest or pleasure in doing things. Feeling down, depressed, or hopeless; I_2= Trouble falling or staying asleep, or sleeping too much; I_3= Feeling tired or having little energy; I_4= Poor appetite or overeating; I_5= Feeling bad about yourself – or that you are a failure or have let yourself or your family down; I_6= Trouble concentrating on things, such as reading the newspaper or watching television; I_7= Moving or speaking so slowly that other people could have noticed; I_8=Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual; I_9= Thoughts that you would be better off dead, or of hurting yourself in some way.

Table 4 Inter-item correlation matrix for the Patient Health Questionnaire-9 (PHQ-9)

Items	I_1	I_2	I_1	I_3	I_4	I_5	I_6	I_7	I_8
I_1	1.000								
I_2	.389	1.000							
I_3	.292	.382	1.000						
I_4	.276	.295	.410	1.000					
I_5	.254	.261	.417	.406	1.000				
I_6	.301	.472	.360	.292	.310	1.000			
I_7	.303	.401	.324	.323	.316	.485	1.000		
I_8	.294	.402	.316	.322	.309	.479	.989	1.000	
I_9	.985	.387	.284	.274	.243	.292	.293	.284	1.000

Notes: I_1= Little interest or pleasure in doing things. Feeling down, depressed, or hopeless; I_2= Trouble falling or staying asleep, or sleeping too much; I_3= Feeling tired or having little energy; I_4= Poor appetite or overeating; I_5= Feeling bad about yourself – or that you are a failure or have let yourself or your family down; I_6= Trouble concentrating on things, such as reading the newspaper or watching television; I_7= Moving or speaking so slowly that other people could have noticed; I_8=Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual; I_9= Thoughts that you would be better off dead, or of hurting yourself in some way.

Table 5 Association between depression and selected factors, $n = 450$

Characteristics	Categories	Depression status		*p*-values	Cramer's V values
		Absent, *n* (%)	Present, *n* (%)		
Age (in years)	≤20	81 (44.8)	100 (55.2)	**0.006**	0.152
	21-24	79 (36.1)	140 (63.9)		
	≥25	30 (60)	20 (40)		
Gender	Male	126 (44.8)	155 (55.2)	0.147	0.068
	Female	64 (37.9)	105 (62.1)		
Uses Facebook	Yes	170 (40.5)	250 (59.5)	**0.005**	0.132
	No	20 (66.7)	10 (33.3)		
Uses YouTube	Yes	148 (40.7)	216 (59.3)	0.167	0.065
	No	42 (48.8)	44 (51.2)		
Uses X (Twitter)	Yes	16 (28.1)	41 (71.9)	**0.021**	0.109
	No	174 (44.3)	219 (55.7)		
Uses Instagram	Yes	60 (37.3)	101 (62.7)	0.112	0.075
	No	130 (45)	159 (55)		
Uses Pinterest	Yes	13 (26)	37 (74)	**0.014**	0.116
	No	177 (44.2)	223 (55.8)		
Uses others	Yes	67 (51.1)	64 (48.9)	**0.014**	0.116
	No	123 (38.6)	196 (61.4)		
Time spent on social media (in hours)	1-5	119 (45.1)	145 (54.9)	**0.019**	0.132
	6-10	55 (34.6)	104 (65.4)		
	≥11	16 (59.3)	11 (40.7)		
Follows family/ Friend	Yes	133 (40.9)	192 (59.1)	0.368	0.041
	No	57 (45.6)	68 (54.4)		
Follows news/ Entertainment	Yes	132 (40.7)	192 (59.3)	0.308	0.048
	No	58 (46)	68 (54)		
Follows celebrity/ Model	Yes	41 (29.7)	97 (70.3)	**0.000**	0.168
	No	149 (47.8)	163 (52.2)		
Follows gaming accounts	Yes	19 (23.8)	61 (76.2)	**0.000**	0.174
	No	171 (46.2)	199 (53.8)		
Follows funny accounts	Yes	44 (30.8)	99 (69.2)	**0.001**	0.158
	No	146 (47.6)	161 (52.4)		
Follows animals/ Birds	Yes	34 (29.8)	80 (70.2)	**0.002**	0.146
	No	156 (46.4)	180 (53.6)		
Follows others	Yes	32 (33.3)	64 (66.7)	0.47	0.094
	No	158 (44.6)	196 (55.4)		
Total		190 (42.2)	260 (57.8)		

The distribution of depression status varies significantly across different social media platforms. Significant but weak associations are observed for Facebook ($p<0.005$, Cramer's $V=0.132$), X/Twitter ($p<0.021$, Cramer's $V= 0.109$), Pinterest ($p<0.014$, Cramer's $V= 0.116$), and other platforms ($p<0.014$, Cramer's $V= 0.116$). However, no significant association is found with YouTube ($p<0.167$) or Instagram ($p<0.112$). Time spent on social media shows a significant

relationship with depression status (p<0.019), but the weak association (Cramer's V= 0.132) suggests a limited impact.

There is a significant association between depression status and the respondents following celebrity/model accounts (p<0.000, with a Cramer's V value of 0.168 indicating a weak association), gaming accounts (p<0.000, with a Cramer's V value of 0.174 indicating a weak association), funny accounts (p<0.001, with a Cramer's V value of 0.158 indicating a weak association), and animal/bird accounts (p<0.002, with a Cramer's V value of 0.146 indicating a weak association). The distribution of depression status does not differ significantly across respondents following family/friend accounts (p<0.368), news/entertainment (p<0.308) and others (p<0.470).

Discussion

Social media's introduction in our daily life has had a significant effect on our mental health. It is important to identify how exactly social media has been affecting us, especially the young adults. This study has made an attempt to find out some factors that might be associated with depression among young adults. Our study show that overall, 57.8% of the study population have depression. According to the World Health Organization (WHO), depression is more prevalent in women than in men25. In our study, a higher percentage of females (62.1%) reported depression compared to males (55.2%). The relationship between depression and social media use was also observed, with users of platforms like Facebook and YouTube showing higher levels of depression. The prevalence of depression is high among respondents of age 21-24 (63.9%). As we checked the severity of depression, we found that 19.8% had minimal depression, 22.4% had mild depression, 20.4% had moderate depression, 20.0% had moderately severe depression and 17.3% had severe depression. In our study, we asked the respondents about the amount of time they spend on social media. One of the previous studies on this issue shows that the time spent on social media has a positive association with depression and the prevalence of depression is high among those who spend great amount of time on social media26. Our study result also supports the previous study. When we checked the association between the usage of different social media platforms and depression, we found that Facebook, X and Pinterest are positively associated with depression. When conducting this study, we assumed Facebook to be positively associated with depression as it was mentioned in one study conducted on the students of University of Dhaka16. Another study analyzed the usage of multiple social media platforms among young adults and found that increased usage

was significantly associated with higher levels of depression. The platforms studied included Facebook, Twitter, and Pinterest2. So, it has been concluded that our study supports the previous study regarding this issue. When we tried to check the effect of the type of accounts the respondents follow on depression, we found that those who follow celebrities, accounts games, funny things, animals, birds and other things have a higher level of depression. A study found that using visual social media (like Instagram and Pinterest) and following accounts related to lifestyle, celebrities, and funny content can lead to increased levels of depression, particularly due to feelings of inadequacy and social comparison.[27, 28] Since our findings are somewhat close to the results of the previous study, we conclude that our study supports the previous one to some extent. While some demographic variables, such as gender, age, and social media-related factors, have significant associations with depression status, their strength is very weak, as evidenced by low Cramer's V values.[20, 21] The means in Table 3 suggest that respondents, on average, reported experiencing the symptoms described in the PHQ-9 items "several days" in the past two weeks.

The consistent standard deviation (SD) values indicate that the spread or dispersion of responses around the mean is similar for each item. None of the items have exceptionally high or low mean scores, indicating that no single symptom was overwhelmingly more or less frequent among respondents23. The whole PHQ-9's Cronbach's α was 0.843. There were no negative values in the inter-item correlation matrix (Table 4), suggesting that the items were measuring the same construct. As a result, the PHQ-9's Cronbach's α was excellent (α = 0.843)29,30. All values of Skewness are positive, indicating that the distributions of responses for all items are right-skewed. This suggests that more respondents chose lower response options (0 = "Not at all" or 1 = "Several days") compared to higher ones (2 = "More than half the days" or 3 = "Nearly every day"). On the other hand, all values of Kurtosis are negative and significantly less than 3, indicating that the distributions of responses for all items are platykurtic (flatter than the normal distribution). This suggests that responses are more evenly spread across the range of options, with fewer extreme values.[31]

Digital literacy and parental guidance are key in reducing the negative effects of social media on mental health. Digital literacy helps young adults use social media responsibly, recognizing harmful behaviors like cyberbullying and social comparison32. It encourages critical thinking, enabling users to understand and protect their mental well-being.[33, 34] Parental guidance plays a vital role by setting limits on screen time, fostering open discussions about

online experiences, and encouraging healthy online habits. By educating children about the risks of excessive social media use and modeling responsible behavior, parents can help their children develop a balanced and positive relationship with social media. Together, these strategies can reduce the risk of depression and anxiety linked to social media use.

Limitations

The study relied on self-reported information from respondents, which may introduce recall bias, social desirability bias, or inaccurate reporting, particularly regarding sensitive information like age or health conditions. Participants were selected from a specific geographic area, which may not represent the broader population. Additionally, non-response from certain groups and the willingness of respondents to participate could lead to selection bias. The study's cross-sectional design limits the ability to infer causal relationships between social media use and depression. Important sociodemographic variables (e.g., income, education, parental education, and occupation) were not included, which could influence the findings. Limited time and lack of funding restricted the sample size and scope of the study, potentially affecting the generalizability of the results. The study's limitations include the inability to establish causality due to its cross-sectional design, as it only shows an association between social media use and depression. Cultural and social factors, such as family background and economic stress, were not considered, which could also influence depression. Additionally, self-selection bias may have occurred, as individuals interested in mental health were more likely to participate, potentially skewing the results.

Conclusion

In recent years, the use of social media has become very popular worldwide due to significant technological advancements. Nearly everyone is now a frequent user of these platforms. This study aimed to examine how social media-related factors are associated with depression and identified its negative impact on mental health has raised concerns. The findings revealed that age and the amount of time spent on social media are positively associated with depression, with males being more affected than females. Additionally, the study showed that a person's depression status can vary based on the social media platforms they use, the types of accounts they follow, and the content they consume. People who use Facebook, X (Twitter), Pinterest and other platforms are more likely to experience depression. Based on the study's findings, it is recommended to increase awareness about the negative impacts of excessive social media use, especially among youth, through educational programs. Users should be

encouraged to manage their time and consume positive content. Providing mental health resources and parental guidance is essential. Social media platforms should implement mental well-being features, and further research into social media's impact on mental health should be supported. Additionally, gender-specific interventions are needed, as males were found to be more affected than females. Policymakers and educators should arrange digital literacy programs in schools to teach safe social media use. Parents can help by limiting screen time and guiding children on healthy online habits. Future research should explore how social media causes depression and understand users' experiences to create better solutions. Future research should focus on developing specific interventions for different age groups, such as teenagers, young adults, and older people, and examine how cultural differences affect the link between social media use and mental health.

Ethical Approval Statement

The Institutional Animal, Medical Ethics, Biosafety, and Biosecurity Committee (IAMEBBC) of the Institute of Biological Sciences (IBSc) at the University of Rajshahi, Bangladesh, reviewed and approved this study (Memo No: 249(35)/320/IAMEBBC/IBSc). In addition, informed verbal consent was obtained from the study participants after explaining the objectives of the study, and the confidentiality of the participants was ensured.

Author Contributions

MRH and MH contributed to the study's conceptualization, developed the methodology, conducted data curation, performed formal analysis, and interpreted the results. Additionally, MNIM wrote the article's first draft and reviewed and edited it. MRI and MKS reviewed the article, provided supervision, and validated the research. MNIM and MRI reviewed and edited the article and validated the research. MNIM and MNP contributed to the study conceptualization, reviewed, and edited the article, provided supervision, and validated the research. All authors have read and agreed to the final version of the manuscript.

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Conflicts of Interest

The authors declared that there are no conflicts of interest.

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