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Psychological Status of Social Media Users among Students of a Selected University in Dhaka, Bangladesh

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Research Article

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Abstract

Background: Social media is a form of electronic communication such as websites for social networking and micro-blogging through which users create online communities to share information, ideas, personal messages, and other content. Social media is also a channel of communication that uses the internet. Social media can converse, share knowledge, and publish content online via social media platforms and there are numerous types of social media, including blogs, microblogs, wikis, social networking sites, photo and video sharing websites, instant messaging, podcasts, widgets, virtual worlds, and more. Social media also links to other sites worldwide and allows for direct connections. It is also the cheapest and fastest way to travel, making it crucial for individuals of all ages. Its use is expanding rapidly day by day throughout the world.

The majority of young people across all age groups are quickly moving away from electronic media like television and radio viewers and listeners and toward social media. Teenagers can develop social networks, engage with others, and construct online personalities with social media. Rapidly using social media has a significant impact on young people though they become beneficial in many ways from it. Some studies found that social media had harmed their privacy, increased daily distractions, and ultimately affects their mental health. Based on the side effects of social media, this present study aimed to pursue the psychological status of social media users of the selected university students.

Objectives: To find out the psychological status of social media users among the students of Bangladesh University of Health Sciences.

Methods: A descriptive type of cross-sectional study was conducted for this study that recruited 253 samples from undergraduate students by the convenience sampling technique from the Bangladesh University of Health Sciences campus, Darus salam road, Mirpur, Dhaka. A semi-structured self-reported questionnaire was used to obtain respondents' data- Socio-demographic factors, Social media-related factors, and Lifestyle-related factors. Collected data were entered into the analyzing software using SPSS version 23. All analyses were carried out at a 5% significance level (p-value set at 0.05). Mean and standard deviation was applied to see the distribution of all data. In bivariate analysis, the Chi-square test, and t-test were performed to see the mean and proportional differences between the groups.

Results: The mean age of the study population is 22.37±3.076 years. From the total study population, female participants 56.5% were larger than male participants 43.5%. Most of the participants live in an urban area 90.9% and 9.1% are in a rural area. More than half of the participants' 53.4% monthly family income was below 50000 thousand taka. 39.1% of participants' monthly family income of 50000-100000 taka and 7.5% of participants' monthly family income of more than 100000 taka.

The present study showed 13.8% of participants were related to smoking. 3.2% of participants were found to be addicted to smokeless tobacco, drugs, or other substances. Almost half of the participants 45.5% of this study had involvement in any sports activities. Of the total participants 89.3%, 85.8%, and 77.9% used Facebook, WhatsApp, and youtube respectively. Most of the participants used smartphones 98.0% rather than laptops/PC and Tablets.

A total of n=253 participants answered that they were habituated to using more than 6 days in a week and more than 5 hours in a day which is one-fourth period in a day.

IAT, GAD-7, and PHQ-9 showed mean scores were 32.65, 4.61, and 6.95 which reported the presence of mild levels of internet addiction, minimal anxiety to mild levels of anxiety, and mild level of depression respectively. The

Association between depression and anxiety according to lifestyle factors (Addiction to any drugs or substances) found a significant association (p<0.005) and (p<.012) respectively. The comparison between anxiety and spending time on social media found a significant association **(p<0.001)** that those who spend more than 6 hours on social media in a day had anxiety illness.

Conclusion: In this study, 49.7% and 40.8% proportion rates of depression and anxiety were found in various forms of conditions (mild, moderate, moderately severe, and severe). Moreover, participants of addiction to any drugs or substances have a significant relationship with depression and anxiety. Spending time on social media is significantly related to anxiety. Engaging with social media for a longer duration of time (about 7 hours per day) has an impact on mental health and may cause sickness like anxiety.

1. Introduction

1.1. Background

Merriam-Webster dictionary defined Social media as “forms of electronic communication (such as websites for social networking and micro-blogging) through which users create online communities to share information, ideas, personal messages, and other content (such as videos)” (1). University of south florida defined as “social media is a channel of communication that uses the internet. Users can converse, share knowledge, and publish content online via social media platforms. There are numerous types of social media, including blogs, microblogs, wikis, social networking sites, photo and video sharing websites, instant messaging, podcasts, widgets, virtual worlds, and more” (2). At this moment, top of the social media sites with active users is Facebook (2.74 billion), YouTube (2.291 billion), WhatsApp (2.0 billion), Facebook messenger (1.3 billion), Instagram (1.221 billion), SnapChat (293 million), Tiktok (750 million) and many more (3). Twitter and LinkedIn are also the most popular used media form. Twitter and LinkedIn have around 229 million and 810 million active users respectively (4, 5).

The most current form of media, social media, has various qualities and characteristics. It offers a variety of features on the same channel, including texting, communicating, sharing photographs, sharing audio, and posting quickly. It also links to other sites worldwide and allows for direct connections. It is also the cheapest and fastest way to travel, making it crucial for individuals of all ages. Its use is expanding rapidly and day by day all throughout the world. The majority of young people across all age groups are quickly moving away from electronic media like television and radio viewers and listeners and toward social media. Social media has a significant impact on kids since young people are increasingly using it. Due to the social media frenzy (6). Teenagers can develop social networks, engage with others, and construct online personalities with social media. These networks can be a great resource for youth, especially for those who struggle with marginalization, impairments, or chronic diseases. Teenagers also utilize social media for self-expression and entertainment. Additionally, the platforms can inform teenagers about current events, enable cross-border communication, and impart knowledge on a range of topics, including good habits. Teenagers may even benefit from social media that is amusing, entertaining, or that fosters genuine connections with peers and a large social network.

However, youth usage of social media can also have a detrimental impact on them by diverting their attention, preventing them from sleeping and exposing them to bullying, rumors, unrealistic expectations of other people's lives, and peer pressure. The impact of social media on teenagers could also vary. A 2015 study discovered a connection between teen use of social media and cell phones for social comparison and feedback-seeking and depressive symptoms. Additionally, a tiny 2013 study discovered that the life satisfaction of older teenagers who used social media passively—for example, by only browsing others' photos—declined. These declines didn't affect

people who utilized social media to communicate with others or upload their content. A previous study on the effects of social media on newly admitted college students found that the more time users spent on Facebook, the more strongly they believed that others were happier than they were. But when the students spent more time socializing with their peers, they felt less this way (7).

The use of social media platforms is pervasive among young people. Every day, young people use a wide range of media and media devices in dialogue and communication with their peer groups. Ten [10] years ago, young people may have only kept in touch with friends and peer groups when hanging out at school or gathering in a town. Instant messaging, social networks, internet gaming, and many other technologies are now available to reach young people. In a society that is always linked, youth are growing up (8). Numerous research show links between the usage of social media and unfavorable effects such as heightened anxiety, obsessive behavior, loneliness, and narcissism. Young adults' growing use of social media raises questions regarding these potential side effects of usage (9).

The penetration rate of social networks is currently at 54% worldwide. In terms of worldwide social media usage by region, Western Europe came out on top with a penetration rate of 79 percent. Eastern and Middle Africa came in last on the list, with use reaches of 10% and 8%, respectively. Social media is used by people for a variety of purposes. Users like finding humorous or interesting stuff and sharing it with friends, but they mostly use social media to keep up with friends who are interested in current events. Social media has a profound and pervasive influence on many aspects of life, including offline conduct as well as online activity. A sizable portion of participants in a global online user survey conducted in February 2019 claimed that social media had improved their access to information, communication ease, and freedom of speech. On the other hand, respondents also said that social media had harmed their privacy, exacerbated political divisiveness, and increased daily distractions (10). Based on the negative and side effects of social media it was realized the importance and this present study aimed to pursue the psychological status of social media users of the selected university students.

1.2. Justification of the study

In Bangladesh, there were 52.58 million internet users till January 2022. At the beginning of 2022, 31.5 percent of the whole population of Bangladesh was online and were 49.55 million active users of social media in January 2022. At the beginning of 2022, Bangladesh had a social media user base equal to 29.7% of the country's entire population (11). Nowadays, social media is an essential element of everyone's life. Many students in Bangladesh spend the majority of their valuable free time speculating about social networking websites online. Therefore, it is important to briefly discuss the effects of social media use on the community. This study stated that 32.6 percent of college students reported social media had a significant impact on them. Furthermore, 14.7% of respondents said that social media had no impact on them at all. Others who are close to 25.6 percent only have a minimal impact on them from 24.5 percent (12).

Social media has different effects on young people's lives on both ends; sometimes these effects are good for young people's social lives and other times these effects are bad for the user. It affects young people who are raised in a period where media is more about interaction, multimedia, and multitasking than broadcast content from the TV (13). A third of all online users globally as of 2021 were between the ages of 25 and 34. This age group made up the largest global group of online users visiting websites. Also, 18% of all online users worldwide were between the ages of 18 and 24. About 5.5 percent of the world's internet users are 65 or older, or the global digital population (14). When compared to earlier generations, one of the largest distinctions in the lives of today's teenagers and young adults is how much more time they spend communicating with their peers online, primarily through social media. According to some specialists, the rise in depressive disorders is proof that the interactions people make online through social media are less emotionally fulfilling and make them feel socially isolated (15). Since social media is a

relatively new technology, there hasn't been much research done to determine whether using it would have positive or negative long-term effects. But numerous studies have discovered a substantial correlation between using social media excessively and a higher risk of depression, anxiety, loneliness, self-harm, and even suicidal thoughts (16).

Every element of life, including academic achievement, work productivity, relationships with family and friends, and participation in society, can be significantly impacted by depression and related mental diseases. Research has also demonstrated a substantial link between depression and many physical conditions, such as cardiovascular disease and tuberculosis. All ranges of people young and old, wealthy and poor experience depression worldwide. Depression is more common in women than in male (17, 18). An estimated 3.8 percent of the world's population suffers from depression, with 5.0 percent of adults and 5.7 percent of persons over 60 years of age being affected. Depression may develop into a significant medical illness, especially if it is recurrent and of a moderate to severe degree. The affected person may experience severe suffering and perform poorly at their job, in school, and in the family. Suicide can result from depression at its worst. Every year, around 700,000 people die by suicide (19, 20).

A global epidemic of poor mental health and related illnesses has been on the rise in the early years of the twenty-first century. Although depression is the disorder most people would associate with mental health problems and the primary cause of disability worldwide, it is not the most pressing issue people have with their mental health. That underserved honor belongs to anxiety. Anxiety problems affect 275 million people worldwide. With a range of 2.5 percent to 6.5 percent of people in each country, that represents about 4 percent of the world's population. There are 170 million female patients with anxiety, 62 percent more than the 105 million male sufferers (21). According to some specialists, the rise in depressive disorders is proof that the interactions people make online through social media are less emotionally fulfilling and make them feel socially isolated (22).

The study is designed to analyze the psychological status of social media use among the students of BUHS. The findings of this study will provide information on how social media induce psychological effects, especially on depression and anxiety.

1.3. Operational Definitions

1.3.1. Depression:

Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. Also called a major depressive disorder or clinical depression, it affects feeling, thinking, and behaviour and can lead to a variety of emotional and physical problems. It may have trouble doing normal day-to-day activities, and sometimes may feel as if life isn't worth living (23). Patient Health Questionnaire [PHQ-9] (24) is a structured form of measuring depression.

1.3.2 Anxiety:

Anxiety is a feeling of fear, dread, and uneasiness. It might cause sweating, feel restless and tense, and a rapid heartbeat. It can be a normal reaction to stress (25). Generalized Anxiety Disorder 7 [GAD-7] (26) is a structured form of measuring Anxiety.

1.3.3. Internet Addiction:

Internet addiction is a mental illness characterized by excessive internet use, typically at the user's expense. Most people think of addiction as a mental illness characterized by compulsive behavior (27). Internet Addiction Test [IATs] (28) is a structured form of measuring internet addiction.

2. Literature Review

One of the most prevalent mental health diseases is depression, which frequently co-occurs with anxiety. Depression can range from moderate and transient to severe and persistent. While some people may only experience depression once, others may do it several times. Suicide can result from depression, but it can be avoided with the right help. It's critical to understand that there are several ways to support young people who are considering suicide. Depression can be a reaction to abuse, violence at school, the death of a loved one, domestic violence, or family troubles at home. After being under a lot of stress for a while, someone could get depressed. Additionally, it may run in families. Sometimes the cause of something may be unknown (29).

When you are anxious or scared about anything, you experience anxiety. It is a typical, human emotion to feel scared or anxious. We usually feel better and calm down thereafter. Fear and worry in moderation can keep us safe and even shield us from harm. However, worry occasionally makes us believe that the situation is more serious and overpowering than it truly is. Long-term anxiety can be brought on by persistent worry. It's crucial to receive support for your child to help them feel better if anxiety is keeping them from doing things they enjoy or if they feel anxious or frightened in an environment that is not stressful (30).

A questionnaire-based survey was taken by the researchers in a private university in Bangladesh titled “Assessment of depression among science students at a private university: A questionnaire survey”. This research especially focused on depression.

Major depressive disorder, sometimes known as depression, is a common and significant medical condition that has an adverse impact on how you feel, think, and behave. Thankfully, it is also curable. Sadness and/or a loss of interest in previously appreciated activities are symptoms of depression. The study examined the prevalence of depression, anxiety, and stress among 120 undergraduate students enrolled in the following programs at Daffodils International University in Dhaka, Bangladesh: pharmacy, computer sciences, software engineering, and electrical engineering. The patient health questionnaire (PHQ-9) scoring was used to determine the existence and severity of depression as well as to determine the circumstances that contributed to it. 120 students in all, including 75 males and 45 females, participated in the study.

Overall, 56.7 percent of the pupils reported having depression. In comparison to male students, female students were more likely to experience depression (60.1%) than male students (28.07%). It demonstrates that female students had a higher percentage of depression than male students (31). Another study among university students in Khost, Afghanistan assessed the relationship between social media addiction and depression. This research examined the connection between social media addiction and depression among university students in Afghanistan's Khost region. A 46-item self-administered questionnaire was given to 384 students from the three universities Shaikh Zayed, Ahmad Shah Abdali, and Pamir University using stratified random sampling. Social media addiction was assessed using the Internet Addiction Test (IAT) developed by Kimberly Young, while depression was assessed using the Centre for Epidemiologic Studies Depression Scale (CES-D). According to the research, social media addiction and depression are positively correlated, and depression is a strong predictor of social media addiction (32).

In Nigeria, a survey among undergraduates of a university in Calabar was conducted about psychological distress and social media usage. The purpose of this study is to evaluate the psychological impact of internet and social media use among Calabar undergraduates. Social networking sites (SNS) are widely available, particularly among young people worldwide. Long-term daily exposure may affect psychological health outcomes cumulatively, including increased and, in certain cases, decreased risk of anxiety and depression. Despite these possible

consequences, there is a dearth of research on the usage patterns and effects of social media, particularly in underdeveloped nations where routine mental health screenings are frequently not available.

A descriptive cross-sectional study was carried out at the Nigerian university of Calabar. Equal numbers of undergraduate students were drawn from five university faculties using a multi-stage sampling approach. Internet addiction and respondents' psychological health were assessed using the General Health Questionnaire and the Internet Addiction Test, respectively. To learn more about the respondents' social media habits and demographics, a sociodemographic questionnaire was used. Students experience a high level of psychological anguish, and it was discovered that those who used social media less or weren't addicted to it experienced this more frequently. Particularly, a high level (33) of Internet addiction may offer protection against the heightened risk of anxiety and despair (34).

3. Methodology

3.1. Study Design

A descriptive type of cross-sectional study was adopted for this study.

3.2. Study Population

Undergraduate Students of Bangladesh University of Health Sciences were the study population.

3.3. Inclusion Criteria and Exclusion Criteria

Inclusion Criteria

- Students from Bachelor Program.
- Willing to participants.

Exclusion Criteria

- Students from master’s program.
- Students who were not interested to participate.

3.4. Study Area

Bangladesh University of Health Sciences campus was the study area.

3.5. Study Period

The study was conducted from July 2022 to December 2022

3.6. Sample Size

Prevalence of depression, anxiety and stress in Bangladesh reported as 54.3%, 64.8% and 59.0% respectively. Here, 60% as the prevalence of mental illness was used to calculate the sample size.

The sample size was calculated by following this formula-

$n = pqz^2/d^2$

Here,

n= Sample size

p = As reference, the prevalence of mental illness 60% was used to calculate the sample size (35–39).

q = 1-p

z = Z score (at 95% CI is 1.96)

d= Error (5%)

So, the sample size is,

$n = pqz^2/d^2$

$n= (0.6\times0.4) \times (1.96)^2/ (.05)^2$

n = 368.79

n = 369

Considering the 10% of non-response rate, adjacent sample size: 369/.9 = **410**

Due to time and resource constrain 253 samples were taken for this study.

3.7. Sampling Technique

A non-probability convenience sampling technique was used in this study.

3.8. Data Collection Instruments and Procedures

A semi-structured questionnaire with different parts was used as the main questionnaire. There were socio-demographic information, social media-related information, and lifestyle-related information with Internet Addiction Test [IATs] (28), Generalized Anxiety Disorder 7 [GAD-7] (26), and Patient Health Questionnaire [PHQ-9] (24) structured form questionnaire to collect the information of the sample.

Internet Addiction Test scoring

The total score for the Internet Addiction Test was the sum of the examinee's scores for each of the 20-item replies. Each item is scored from 0 to 5 on a 5-point scale. There was a 100-point maximum. The more points each participant received, the more serious the situation was. Total scores between 0 and 30 points were thought to represent typical Internet usage; scores between 31 and 49 suggest a mild level of Internet addiction; scores between 50 and 79 reflect a moderate level; and scores between 80 and 100 indicate a serious reliance on the Internet.

The score for GAD-7 anxiety severity

This was determined by giving the response categories of "not at all," "a few days," "more than half the days," and "almost every day" scores of 0, 1, 2, and 3, respectively. The GAD-7's seven items had a total score ranging from 0 to 21. Anxiety levels range from 0 to 4 (minimal anxiety), 5 to 9 (mild anxiety), 10 to 14 (moderate anxiety), and 15 to 21 (severe anxiety).

The score for the Patient Health Questionnaire (PHQ-9)

Patient Health Questionnaire responses were also signed, with 0 denoting never, 1 several days, 2 more than half the days, and 3 virtually every day. The range of the overall score for all of the components of (PHQ-9). From 1–4, is considered minimal depression; from 5–9, mild depression; from 10–14, moderate depression; from 15–19, moderately severe depression; and from 20–27, severe depression.

3.9. Data Management and Analysis Plan

Data were collected through face-to-face interviews from the BUHS campus. Collected data were entered into the analyzing software using SPSS version 23. All analyses were carried out at a 5% significance level (p-value set at 0.05). Appropriate statistical tests were performed as needed. Univariate analysis, mean, median, standard deviation, and interquartile range were applied to see the distribution of all data. In bivariate analysis, the Chi-square test, and t-test were performed to see the mean and proportional difference between the groups. Proper statistical tests were applied to find out the true result of this research. The data were presented in tables and graphs as appropriate.

3.10. Quality Control and Quality Assurance

Data quality was maintained strictly during the data collection period to ensure the true data as the present. And the data will be reserved with confidence.

3.11. Ethical consideration

Ethical approval

• was taken from the Ethical Review Committee of BUHS.

- Ethical guidelines of BUHS were followed throughout the study.
- Confidentiality of the participants was maintained.
- No forceful attempt was taken to interview any unwilling participants.
- No data will be disclosed without the permission of the respondents.

3.12. Limitations

- Time and resources were the major limitations of this study.
- Being a descriptive type of cross-sectional study, it cannot measure causal relationships.
- Non-probability sampling method was used to conduct the study, for this reason, the findings of this study cannot be generalized.
- The sampling size was calculated based on probability sampling but due to time and resource constrain my sample size was 253.

4. Results

Table 1
Socio-demographic characteristics among the study population (n = 253)

Socio-demographic characteristics	**n (%)**
Age, *years* (mean ± SD)	22.37 ± 3.076
Age group, *years*	
< 22	123 (48.6)
≥ 22	130 (51.4)
Sex	
Male	110 (43.5)
Female	143 (56.5)
Marital status	
Married	37 (14.6)
Unmarried	216 (85.4)
Part-time working	
Yes	124 (49)
No	128 (51)
Accommodation area	
Rural	23 (9.1)
Urban	230 (90.9)
Monthly family income (taka)	
< 50000	135 (53.4)
50000–100000	99 (39.1)
> 100000	19 (7.5)

*: Included- freelancing, private tutoring, business, etc.

In Table 1 descriptive statistics were used to show the frequency distribution of the different socio-demographic characteristics. This study included 253 participants, where the mean age was 22.37 years with a standard deviation of 3.076 years. In this study, more than half of the participants were female 56.5% and males 43.5%. Most of the participants were single or unmarried 85.4% and married 14.6%. Apart from the main occupation as a “student”, 49% of participants were involved with other occupations like a part-time job, private tutoring, freelancing, and business. And 51% weren’t involved in anything or any occupation. 90.9% of the total participants were from urban and whereas 9.1% were from rural area. More than half of the participants' 53.4% monthly family income was less than 50 thousand taka, 39.1% of participants had (50–100) thousand taka monthly income, and only 7.5% of participants had more than 1 lac taka monthly income.

Table 2
Lifestyle-related information among the study population (n = 253)

Lifestyle-related information	**n (%)**
Smoking	
Yes	35 (13.8)
No	218 (86.2)
Addiction to any drugs or substances*	
Yes	8 (3.2)
No	245 (96.8)
Involvement in any sports activities	
Yes	115 (45.5)
No	138 (54.5)

*: *Smoke or smokeless tobacco and other addictive substances.*

According to Table 2 **13**.8% of the total participants were smokers as reported. And 86.2% of the participants were non-smoker. A few percent 3.2% of the participants wonted with other drugs or addictive kinds of substances and 96.8% of participants were not addicted. 45.5% of participants were regularly active in any kind of sports activities and 54.5% weren't.

Table 3
Social media-related information among the study population (n = 253)

Social media-related information	n (%)
Facebook	
Yes	226 (89.3)
No	27 (10.7)
YouTube	
Yes	197 (77.9)
No	56 (22.1)
Instagram	
Yes	139 (54.9)
No	114 (45.1)
Tiktok	
Yes	29 (11.5)
No	224 (88.5)
WhatsApp	
Yes	217 (85.8)
No	36 (14.2)
Snapchat	
Yes	65 (25.7)
No	188 (74.3)
Smartphone	
Yes	248 (98.0)
No	5 (2.0)
Laptop/PC	
Yes	128 (50.6)
No	125 (49.4)
Tablet	
Yes	16 (6.3)
No	237 (93.7)

Table 3 shows that 89.3% of respondents were used to Facebook and 10.7% of respondents were not the user of Facebook. 77.9% of respondents were regular users of YouTube and 22.1% of participants were not users of YouTube. Almost half of the participants 54.9% used Instagram and left half 45.1% were not used to it. Frequency

shows that only 11.5% of participants wonted TikTok and 88.5% did not use it. In this study, WhatsApp users 85.8% were the maximum number of users after Facebook users. Only 14.2% of participants didn't use WhatsApp as social media. Snapchat users were 25.7% and Snapchat non-users were 74.3% of the total participants. Among the total participants, 98.0% used social media using their smartphones. 50.6% of users' used laptops/PC for using social media. And only 6.3% of participants used tablets as a regular using device.

According to Fig. 1, **77**.5% of participants applied social media for educational purposes and 22.5% weren't using social media for educational purposes. Most of the participants 83.8% used it for entertainment purposes and 16.2% of participants weren't. 78.3% of participants were used to communicating with social media and 21.7% weren't. Sharing information purpose also used through social media by the participants 71.5% and 28.5% weren't.

Half of the participants 49.4% were normal-level internet users. 30.0% of participants had a mild level of internet addiction. And 20.6% of participants were in a moderate level of internet addiction.

The frequency of depression shows that 50.2% of participants were in minimal or normal depression. 21.3% had mild depression and 13.0% of participants had moderate depression. 9.1% of participants were in moderately severe depression and 6.3% of participants had severe depression.

The frequency of anxiety shows, more than half of the participants 59.3% had minimal anxiety, 25.3% of participants were in mild anxiety level, 11.9% of participants were in moderate anxiety and last, and 3.6% of participants had severe anxiety.

Table 4
Mean ± SD of different characteristics of the study population (n = 253)

Variables	Mean ± SD	95% CI lower-upper
Social media use		
Day's in a week	6.75 ± .948	6.63–6.87
Hours in a day	5.69 ± 3.825	5.21–6.18
IAT	32.65 ± 18.160	30.40–34.90
GAD-7	4.61 ± 4.452	4.06–5.16
PHQ-9	6.95 ± 6.759	6.12–7.79

According to Table 4, the mean days of social media use in a week was more than six days (6.75) with a standard deviation of .948 days. The mean hours of social media use of the total study population was 5.69 with a standard deviation of 3.825 hours.

Internet Addiction Test shows the mean was 32.65 with a standard deviation of 18.160 which indicates that the presence of a mild level of internet addiction and the total score of the population lies between a normal level of the internet user to the presence of a moderate level of the internet user. The mean of Generalized Anxiety Disorder-7 was 4.61 with a standard deviation of 4.452 which indicates that the study population was in the minimal anxiety level and the total result lies between minimal anxiety to mild anxiety level. The mean score of Patient Heal Questionnaire-9 was 6.95 with a standard deviation of 6.759 which indicates that the mild depression of the participant and total score lies between minimal depression and moderate depression level of the study participants.

Table 5
Relationship between depression and socio-demographic, and lifestyle factors among the study population (n = 253)

Variables	Minimal	Mild	Moderate	Moderately severe	Severe	Chi-square	*p*-value
	n (%)						
Age							
< 22, years	60 (48.8)	31 (25.2)	13 (10.6)	9 (7.3)	10 (8.1)	4.953	.292
≥ 22, years	67 (51.5)	23 (17.7)	20 (15.4)	14 (10.8)	6 (4.6)		
Sex							
Male	55 (50.0)	23 (20.9)	14 (12.7)	12 (10.9)	6 (5.5)	.974	.914
Female	72 (50.3)	31(21.7)	19 (13.3)	11 (7.7)	10 (7.0)		
Living area							
Rural	12 (52.2)	3 (13.0)	2 (8.7)	3 (13.0)	3 (13.0)	3.573f	.439
Urban	115 (50.0)	51 (22.2)	31 (13.5)	20 (8.7)	13 (5.7)		
Marital status							
Married	22 (59.5)	9 (24.3)	3 (8.1)	2 (5.4)	1 (2.7)	2.589f	.627
Unmarried	105 (48.6)	45 (20.8)	30 (13.9)	21 (9.7)	15 (6.9)		
Family income							
< 50000 taka	68 (50.4)	34 (25.2)	13 (9.6)	12 (8.9)	8 (5.9)	14.035f	.061
50000–100000	49 (49.5)	20 (20.2)	13 (13.1)	10 (10.1)	7 (7.1)		
> 100000	10 (52.6)	0 (0.0)	7 (36.8)	1 (5.3)	1 (5.3)		
Smoking							
Yes	17 (48.6)	3 (8.6)	6 (17.1)	6 (17.1)	3 (8.6)	7.359f	.102
No	110 (50.5)	51 (23.4)	27 (12.4)	17 (7.8)	13 (6.0)		
Addiction to any drugs or substances							
Yes	2 (25.0)	0 (0.0)	1 (12.5)	2 (25.0)	3 (37.5)	12.300f	**.005***

**: p value < 0.05 means significance*

Variables	Minimal	Mild	Moderate	Moderately severe	Severe	Chi-square	*p*-value
	n (%)						
Age							
No	125 (51.0)	54 (22.0)	32 (13.1)	21 (8.6)	13 (5.3)		
Involvement in any sports activities							
Yes	56 (48.7)	23 (20.0)	18 (15.7)	12 (10.4)	6 (5.2)	2.212	.705
No	71 (51.4)	31 (22.5)	15 (10.9)	11 (8.0)	10 (7.2)		
**: p value < 0.05 means significance*							

Table 5 shows the association and frequency distribution of depression according to sociodemographic and lifestyle-related factors. The table shows, there was no relationship between depression and sociodemographic factors. From the lifestyle-related factors addiction to any drugs or substances was significantly associated with depression.

Table 6
Relationship between depression and social media among the study population (n = 253)

Variables	Minimal	Mild	Moderate	Moderately severe	Severe	Chi-square	*p*-value
	n (%)						
Facebook							
Yes	112 (49.6)	50 (22.1)	27 (11.9)	22 (9.7)	15 (6.6)	4.022	.404
No	15 (55.6)	4 (14.8)	6 (22.2)	1 (3.7)	1 (3.7)		
YouTube							
Yes	98 (49.7)	42 (21.3)	22 (11.2)	21 (10.7)	14 (7.1)	5.710	.223
No	29 (51.8)	12 (21.4)	11 (19.6)	2 (3.6)	2 (3.6)		
Instagram							
Yes	69 (49.6)	29 (20.9)	16 (11.5)	16 (11.5)	9 (6.5)	2.606	.633
No	58 (50.9)	25 (21.9)	17 (14.9)	7 (6.1)	7 (6.1)		
Tiktok							
Yes	16 (55.2)	1 (3.4)	5 (17.2)	4 (13.8)	3 (10.3)	7.153	.125
No	111 (49.6)	53 (23.7)	28 (12.5)	19 (8.5)	13 (5.8)		
WhatsApp							
Yes	110 (50.7)	46 (21.2)	26 (12.0)	20 (9.2)	15 (6.9)	2.269	.692
No	17 (47.2)	8 (22.2)	7 (19.4)	3 (8.3)	1(2.8)		
Snapchat							
Yes	31 (47.7)	12 (18.5)	7 (10.8)	8 (12.3)	7 (10.8)	4.525	.342
No	96 (51.1)	42 (22.3)	26 (13.8)	15 (8.0)	9 (4.8)		
**: p value < 0.05 means significance*							

Table 6 shows the association and frequency distribution of depression according to the social media of the respondents. This table didn't show any association between depression and the most commonly used social media.

Table 7
Relationship between anxiety and socio-demographic, and lifestyle factors among the study population (n = 253)

Variables	Minimal	Mild	Moderate	Severe	Chi-square	*p*-value
	n (%)					
Age						
< 22, years	78 (63.4)	23 (18.7)	18 (14.6)	4 (3.3)	6.425	.093
≥ 22, years	72 (55.4)	41 (31.5)	12 (9.2)	5 (3.8)		
Sex						
Male	67 (60.9)	27 (24.5)	12 (10.9)	4 (3.6)	.281	.968
Female	83 (58.0)	37 (25.9)	18 (12.6)	5 (3.5)		
Living area						
Rural	11 (47.8)	8 (34.8)	3(13.0)	1 (4.3)	1.535	.674
Urban	139 (60.4)	56 (24.3)	27 (11.7)	8 (3.5)		
Marital status						
Married	25 (67.6)	6 (16.2)	6 (16.2)	0 (0.0)	4.150	.223
Unmarried	125 (57.9)	58 (26.9)	24 (11.1)	9 (4.2)		
Family income						
< 50000 taka	80 (59.3)	38 (28.1)	12 (8.9)	5 (3.7)	3.663	.731
50000–100000	60 (60.6)	21 (21.2)	15 (15.2)	3 (3.0)		
> 100000	10 (52.6)	5 (26.3)	3 (15.8)	1 (5.3)		
Smoking						
Yes	19 (54.3)	9 (25.7)	4 (11.4)	3 (8.6)	3.051	.398
No	131 (60.1)	55 (25.2)	26 (11.9)	6 (2.8)		
Addiction to any drugs or substances						
Yes	3 (37.5)	1 (12.5)	2 (25.0)	2 (25.0)	13.077	**.012***
No	147 (60.0)	63 (25.7)	28 (11.4)	7 (2.9)		

**: p value < 0.05 means significance*

Variables	Minimal	Mild	Moderate	Severe	Chi-square	*p*-value
	n (%)					
Age						
Involvement in any sports activities						
Yes	69 (60.0)	31 (27.0)	12 (10.4)	3 (2.6)	1.141	.772
No	81 (58.7)	33 (23.9)	18 (13.0)	6 (4.3)		
**: p value < 0.05 means significance*						

Table 7 shows the association and frequency distribution of anxiety according to socio-demographic and lifestyle factors of the respondents. The table shows addiction to any drugs or substances was significantly associated with anxiety.

Table 8
Relationship between anxiety and social media among the study population (n = 253)

Variables	Minimal	Mild	Moderate	Severe	Chi-square	*p*-value
	n (%)					
Facebook						
Yes	131 (58.0)	61 (27.0)	26 (11.5)	8 (3.5)	3.255	.344
No	19 (70.4)	3 (11.1)	4 (14.8)	1 (3.7)		
YouTube						
Yes	111 (56.3)	52 (26.4)	25 (12.7)	9 (4.6)	4.805	.176
No	39 (69.6)	12 (21.4)	5 (8.9)	0 (0.0)		
Instagram						
Yes	73 (52.5)	43 (30.9)	18 (12.9)	5 (3.6)	6.574	.086
No	77 (67.5)	21 (18.4)	12 (10.5)	4 (3.5)		
Tiktok						
Yes	17 (58.6)	8 (27.6)	3 (10.3)	1 (3.4)	.135	.967
No	133 (59.4)	56 (25.0)	27 (12.1)	8 (3.6)		
WhatsApp						
Yes	127 (58.5)	56 (25.8)	26 (12.0)	8 (3.7)	.398	.960
No	23 (63.9)	8 (22.2)	4 (11.1)	1 (2.8)		
Snapchat						
Yes	36 (55.4)	19 (29.2)	8 (12.3)	2 (3.1)	.832	.839
No	114 (60.6)	45 (23.9)	22 (11.7)	7 (3.7)		
**: p value < 0.05 means significance*						

Table 8 shows the association and frequency distribution of anxiety according to social media of the study population. This table shows the insignificant relationship between anxiety and social media.

Table 9
Mean comparison between depression and spending time on social media among the study population (n = 253)

Variables	n (%)	t-test	*p*-value
Depression	***Mean ± SD***		
Yes	6.32 ± 4.140	2.539	0.077
No	5.08 ± 3.401		
**: p value < 0.05 means significance*			

Table 9 represents no significant result between depression and spending time on social media. That means depressed and not depressed respondents had no effect on their spending time on social media.

Table 10
Mean comparison between anxiety and spending time on social media among the study population (n = 253)

Variables	n (%)	t-test	*p*-value
Anxiety	*Mean ± SD*		
Yes	6.79 ± 4.569	3.502	**0.001***
No	4.94 ± 3.021		
**: p value < 0.05 means significance*			

Here Table 10 shows the significant association between anxiety and spending time on social media. The mean result indicates that from the study population, those who spend 6.79 hours had an anxiety disorder.

5. Discussion

The study aims to estimate the proportion of depression and anxiety according to social media use among the students of BUHS. This study includes undergraduate students only. The mean age of the study population was 22.37 ± 3.076 years. A questionnaire survey was conducted in a private university in Bangladesh about the assessment of depression among science students at a private university where there mean age of the participants was 21 ± 2 years (31). Among the 253-study population, 48.6% were below 22 years and 51.4% were equal to or more than 22 years old.

From the total study population, female participants 56.5% were larger than male participants 43.5%. There were married and unmarried participants also. Married participants were 14.6% and unmarried participants were 85.4%. Apart from the study, 49% of participants did a part-time job that includes freelancing, private tutoring, business, etc. And 51% didn't engage in this kind of work. From the study population, most of the participants live in an urban area 90.9% and 9.1% were in a rural area. More than half of the participants' 53.4% monthly family income was below 50000 thousand taka. 39.1% of participants' monthly family income of 50000–100000 taka and 7.5% of participants' monthly family income of more than 100000 taka.

Lifestyle-related information showed 13.8% of participants were related to smoking. Another tobacco practice-related study in a selected university in Bangladesh showed that the prevalence of overall current tobacco smokers was 12.3% for both males and females (40). The present study result showed the maximum number of participants was Non-smokers 86.2%. And 3.2% of participants were addicted to smokeless tobacco, drugs, or other substances. Almost half of the participants 45.5% of this study had involvement in any sports activities and 54.5% of participants of this study weren't physically involved in any sports activities.

Social media has become an important part of our daily life. It helps us in our communication, thoughts sharing, education, transfer of information, and many more. At this moment there are a lot of social media. Some of them are most well-liked and keep accepted by the people. In this study, the most used social media were surveyed by the participants. Results from the social media-related information showed that around ninety percent of participants 89.3% used Facebook as mostly used social media. WhatsApp was in the second position at 85.8% and YouTube was in the third position at 77.9%. Instagram 54.9%, Snapchat 25.7%, and Tiktok 11.5% were in fourth, fifth, and sixth

position respectively. Students used social media through devices. Smartphones, laptops/PC, and tablets were the most commonly used devices. In this study, most of the participants used smartphones 98.0% rather than laptops/PC and Tablets.

Internet addiction test results showed that almost half of the participants had internet addiction whereas 30.0% had a mild level of internet addiction and 20.6% had a moderate level of internet addiction. This moderate level of internet addiction result was quite similar to a Nigerian study (34) where 20.1% of participants were found to have moderate to severe forms of internet addiction. A total of 49.7% of participants had depression including mild 21.3%, moderate 13.0%, moderately severe 9.1%, and severe depression 6.3%. A Bangladeshi study in a private university showed the overall prevalence of depression among the students was 56.7 percent (31) and showed a higher prevalence of depression. Around half of the participants had anxiety where mild 25.3%, moderate 11.9%, and severe anxiety 3.36%. A Study of International Students in China during COVID-19 found that anxiety was 52.50% which is a little bit higher than this study (41).

A total of n = 253 participants answered that they were habituated to using more than 6 days in a week and more than 5 hours in a day which is one-fourth of a day.

IAT, GAD-7, and PHQ-9 showed mean scores were 32.65, 4.61, and 6.95 which report the presence of mild levels of internet addiction, minimal anxiety to mild levels of anxiety, and mild level of depression respectively. The result of depression of this study showed that the < 22 age group was more depressed 51.2% than the ≥ 22 age group 48.5%. In this age group male participants 50.0% were more depressed than female participants 49.7%. Living in the urban area 50.0% of participants and unmarried 54.1% of participants have more depression than the rural 47.8% of participants and married 40.5% of participants. Lifestyle-related factors result showed that participants who did smoking 51.4% and had an addiction to any drugs or substances 75% were more depressed than the non-smokers 49.5% and non-addicted participants 49%. The proportion of depression was higher among Facebook users 50.4% than the non-Facebook users 44.4%. Similarly, YouTube, Instagram, and Snapchat users had a higher proportion of depression 50.3%, 50.4%, and 52.3% respectively. Participants of this study showed some inverse results between anxiety and depression according to socio-demographic and lifestyle factors.

The proportion of anxiety showed, the elder age group ≥ 22 participants had more proportion of anxiety illness than the < 22 younger age group participants 44.6% and 36.6% respectively. Female participants 42.0% had more anxiety levels than the male group 39.1% of participants. Married and higher family income groups had a higher proportion of anxiety than others. Lifestyle factors showed a similar result of depression that participants of the smoker and addicted to any drug or substances had a higher proportion of anxiety 45.7% and 62.5% respectively. Social media-related results of anxiety showed quite a similar result according to depression. Users of Facebook 42%, YouTube 43.7%, Instagram 47.5%, and Snapchat 44.6% had a higher proportion of anxiety illness than the non-user groups. This study has found a significant relationship between addiction to any drugs or substances with depression (p = 0.005) and anxiety (p = 0.012)

A statistical t-test was performed to answer the mean comparison among depression, anxiety, and spending time on social media. The comparison between anxiety and spending time on social media found a significant association (p = 0.001) that those who spend more than 6 hours on social media in a day had anxiety illness. But interestingly no significant association was observed in the case of depressive illness amongst the social media user. Moreover, several social media-related studies showed an association between depression and social media (32, 34).

6. Conclusions and Recommendations

Conclusions

In this study, 49.7% and 40.8% proportion rates of depression and anxiety were found in various forms of conditions (mild, moderate, moderately severe, and severe). Moreover, participants of addiction to any drugs or substances have a significant relationship with depression and anxiety. Spending time on social media is significantly related to anxiety. Engaging with social media for a longer duration of time (about 7 hours per day) has an impact on mental health and may cause sickness like anxiety.

Recommendations

- In the future, another study can be conducted with an appropriate sample with a probability sampling method for acceptance of this study.
- An awareness program can be organized among the participants and also share the findings of the study with the parents of participants.

Declarations

Participant Consent: Written informed consent was obtained from all participants prior to their participation in the study. Participants were informed about the purpose and procedures of the study, and participation was entirely voluntary.

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Figures

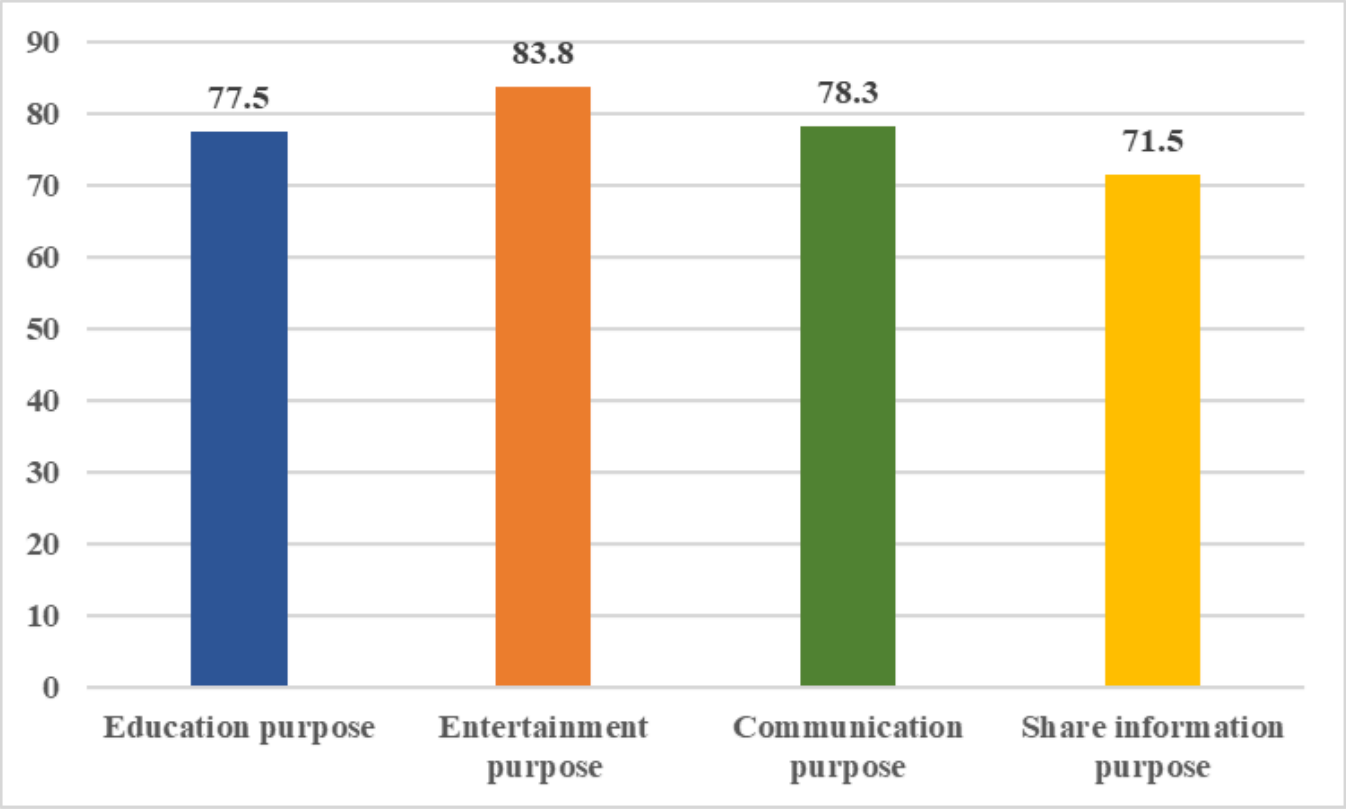


Figure 1

Purpose of social media use among the study population (n=253)

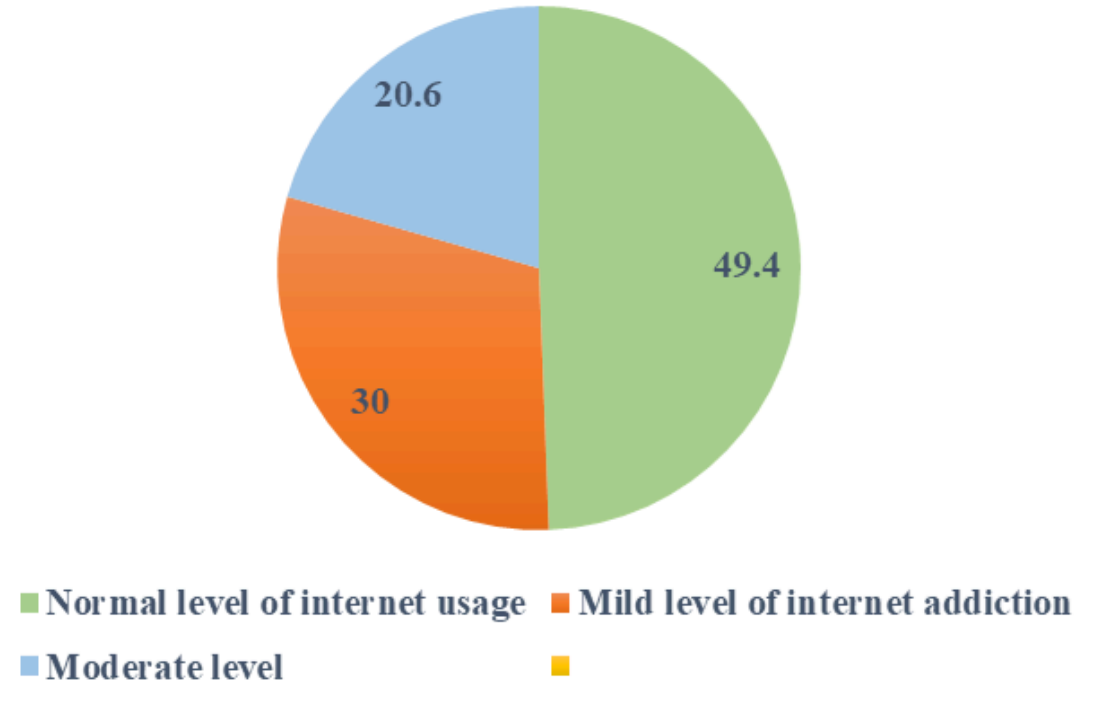


Figure 2

Frequency distribution of internet addiction among the study population (n=253)

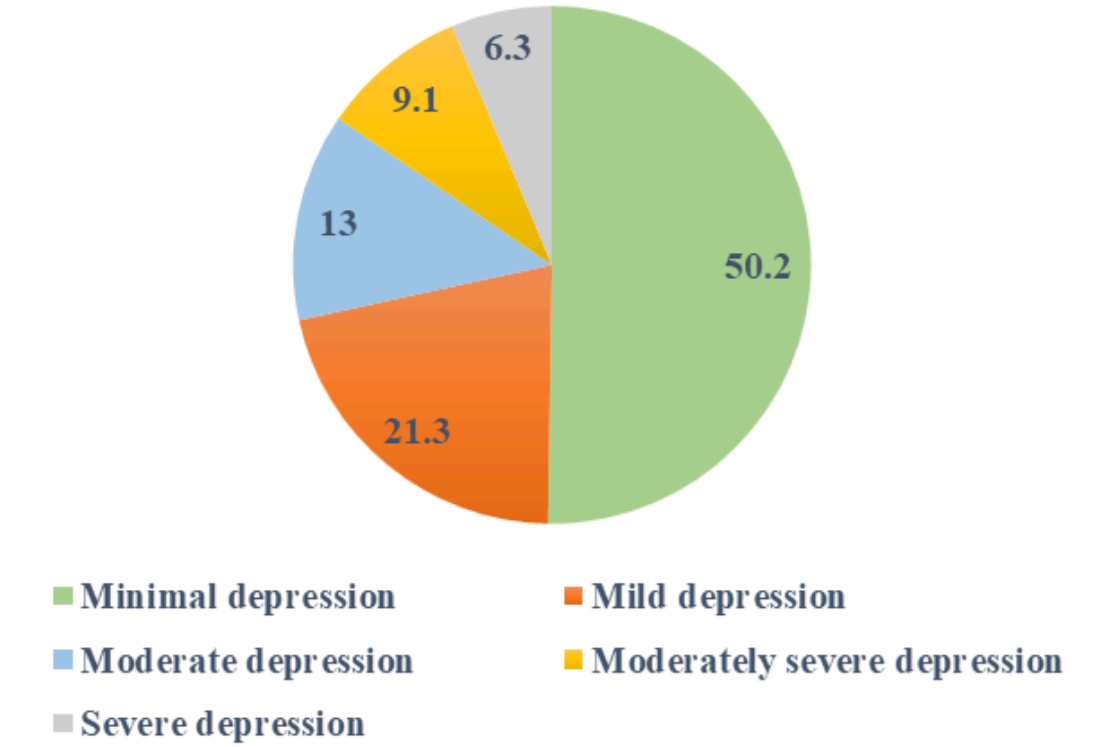


Figure 3

Frequency distribution of depression among the study population (n=253)

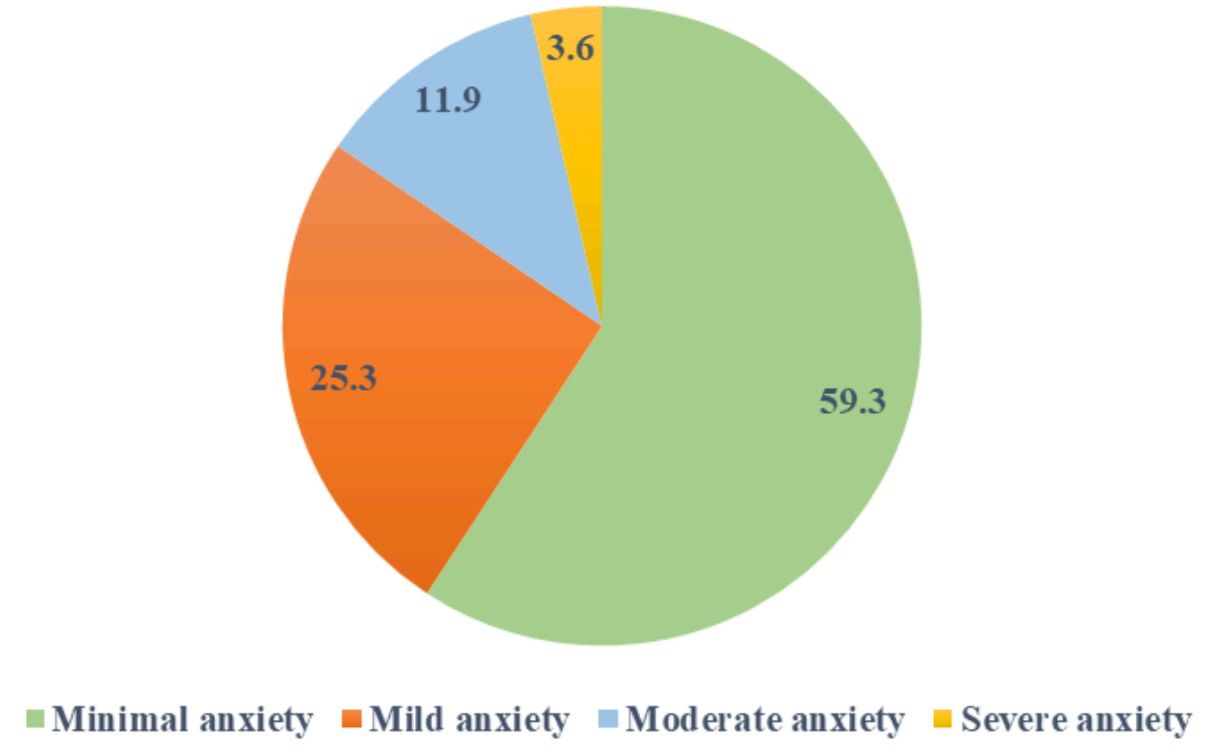


Figure 4

Frequency distribution of anxiety among the study population (n=253)