Faculty of Medicine

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LEVEL OF DEPRESSION AND ANXIETY AMONG THE STUDENTS OF UNIVERSITY OF DHAKA AND JAHANGIRNAGAR UNIVERSITY DURING COVID-19 PANDEMIC

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We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled

LEVEL OF DEPRESSION AND ANXIETY AMONG THE STUDENTS OF UNIVERSITY OF DHAKA AND JAHANGIRNAGAR UNIVERSITY DURING COVID-19 PANDEMIC

Submitted by **Jannatul Hasan**, for the partial fulfilment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

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DECLERATION

I declare that the work presented here is entirely mine. Every source used has been properly cited. Any errors or inaccuracies are my own. I also declare that any publication, presentation, or dissemination of the study would require written consent from my supervisor.

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Acronyms

COVID - 19   Corona Virus Disease of 2019

WHO   World Health Organization

IRB   Institutional Review Board

SPSS   Statistical Package for the Social Sciences

DU   University of Dhaka

JU   Jahangirnagar University

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ABSTRACT

Introduction: COVID-19 is a highly contagious disease caused by the SARS-Co V-2 virus. COVID-19 was originally discovered in Wuhan (China) in mid-December of 2019. It causes widespread anxiety, depression, fear and distress. ***Purpose***: To identify the prevalence of depression and anxiety among the students of Dhaka University and Jahangirnagar University during COVID-19 Pandemic. ***Objective***: To identify the percent of students who are suffering from depression and anxiety, explore the socio-demographic characteristics of the students, identify vulnerable gender affected from depression and depression, assess the severity of depression and anxiety and evaluate the possible causes that might be responsible for developing depression. ***Methodology***: It was a cross sectional study. Total 300 participants were attended willingly and conveniently for this study from University of Dhaka and Jahangirnagar University. Data was collected Center for Epidemiologic Studies Depression Scale (CESD**),** Generalized Anxiety Disorder Scale (GAD-7) with Socio-demographic questions. Statistical Package for Social Science (SPSS version 23) was used for data analysis. ***Results***: The findings revealed that students have significant rates of anxiety and depression symptoms, as well as moderate to poor mental health scores based on the cut scores for their respective measures. The findings of the cross-sectional survey indicate that more than two-thirds of the students were experiencing mild to severe depression (77.67%) and mild to severe anxiety (80%). Researcher also found significant association between depression and anxiety with age, gender, education status, monthly family income, COVID – 19 infection of the participants and family members. ***Conclusion***: The COVID-19's confinement, self-isolation, and social alienation have exacerbated psychological issues among Bangladeshis. The COVID-19 pandemic has caused mental stress among college and university students because of academic delays, virus dread, financial instability, and career insecurity. This study helps to collect information from the students about depression and anxiety which further may help to establish an effective treatment protocol for them and improve student's mental health.

Key words: Depression, anxiety, COVID – 19.

CHAPTER- I	**INTRODUCTION**

1.1 Background

Coronavirus disease 2019 (COVID-19) is a highly contagious disease caused by the coronavirus (SARS-Co V-2). COVID-19 was originally discovered in Wuhan (China) in mid-December of 2019 (Yu & Yang, 2020). The COVID-19 (which is caused by the SARS-Cov-2 virus) has spread to practically every country and territory on the planet. COVID-19 was labeled a worldwide health crisis and a pandemic by the World Health Organization (WHO) on March 11, 2020. As of November 22, 2021 around 256.48 million people had been infected by COVID-19 with 5.15 million verified deaths globally. It has proven to be the second worst pandemic of this century thus far. The COVID-19 pandemic has emerged as one of the most serious health disasters in a generation and it has affected People from many countries, continents, ethnicities, and socioeconomic groups (Shanafelt et al., 2020).

Several governments undertook a variety of anti-epidemic measures, such as restricting foreign citizen's travel, closing public areas, and shutting down the whole transportation system, in order to prevent the extremely infectious illnesses from spreading from person to person (Zhai & Du, 2020).

The first COVID-19 case was detected in Bangladesh on March 8, 2020. As of November 30, 2021 around 1,576,284 people has been infected by COVID-19 and 27,981 people has been died from the COVID-19 virus in Bangladesh (Institute of Epidemiology, Disease Control and Research, 2021). Like many other nations, Bangladesh government also implemented a lockdown policy on March 26, 2020, in order to maintain 'social distance' through 'home quarantine' in order to reduce 'spread' among the people, since the global health community has yet to develop a precise therapy or vaccination for those who are ill or at risk (Bhuiyan et al., 2020).

Initially, all educational institutions in the country were closed from March 18 to March 31, 2020 and then extended in different phases until September 12, 2021 (Dhaka Tribune, 2021).

Pandemics such as COVID-19 and other infectious illness epidemics are not only unaccounted for by medical science but they also expose more subtle facets of human existence (Ansari & Yousefabad, 2020).

Higher rates of dependency or assistance from others in times of difficulty are weaknesses that can be experienced by a potential global health problem such assistance from others in difficult times is often difficult or requires the implementation of physical protection measures, such as spatial distancing, home quarantine, and school and work closures. Unprecedented 'home confinement' under lockdown combined with the uncertainty of academic and professional careers also has a wide range of effects on student's mental health. A Canadian research investigating the impact of isolation during the SARS pandemic discovered a link between lengthier quarantine periods and a higher frequency of anxiety and depression among persons (Hawryluck et al., 2004).

The SARS-Cov-2 virus spreads over the world, it causes widespread anxiety, depression, fear, and distress, all of which are legitimate and understandable reactions to the ever-changing and unexpected position in which everyone finds themselves (Limcaoco et al., 2020).

The current COVID-19 epidemic is also causing a psycho-emotional meltdown and nations reporting a dramatic increase in mental health issues that resulted in an upsurge in substance abuse and, in some cases, suicidal conduct (Goyal et al., 2020).

Researchers in China discovered that increased exposure to "misinformation" via social media is more likely to contribute to the development of mental health disorders among the population of the country's various socioeconomic groups (Gao et al., 2020). Overall, this pandemic is a global public health emergency that poses a threat to psychological well-being (Wang et al., 2020).

During this crisis, early published research projected that a persistent pandemic would have a significant influence in exposing the importance of an individual's psychological requirements. For example, within a month of COVID-19 being designated a pandemic, Bangladesh like many other countries throughout the world put in place precautionary measures (spatial separation, quarantine, self-isolation, and so on) to protect people against COVID-19 contaminations. Staying indoors from quarantining for an extended period has been demonstrated to alter risk factors for anxiety and depression, despite their good intentions. Recent Study also indicates this too that People confined in isolation and quarantine endure significant discomfort in the form of worry, frustration, uncertainty, and post-traumatic stress symptoms (Brooks et al., 2020).

Since the outbreak, epidemiological data from Bangladesh has showed that the COVID-19 pandemic has caused mental health difficulties as well as widespread isolation. Fear was discovered early on in the epidemic to be a contributing element to these mental health consequences for Bangladeshis (Sakib et al., 2020).

COVID-19-related anxieties and fears are linked to greater COVID-19 anxiety, generalized anxiety, depression, and worse mental well-being in Bangladeshi populations. As a result, the epidemic has a psychological influence on Bangladeshis to some extent (Ahmed et al., 2020).

Students at the tertiary level may be particularly sensitive to COVID-19's psychological effects since they are in the midst of transitioning their academic and professional life and are prone to high levels of stress, anxiety, and sadness in general. These general mental health consequences for college students have also been discovered in Bangladeshi

students, who had higher levels of anxiety and despair than adults. Due to the changes in norms caused by COVID-19, Bangladeshi college students will be a particularly vulnerable demographic in the event of a pandemic (Khan et al., 2020).

The closure of educational institutions in Bangladesh in the early months of COVID-19's spread, students no longer had the sense of stability and stimulation provided by that community, and had fewer opportunities to be with their friends and receive the social support needed for good mental health. The government stopped all educational institutions in Bangladesh for the rest of the month, until further notice, on March 18, 2020, when there were only eight known case. Dormitories at public colleges that were unable to maintain spatial separation have stayed closed for the protection of their inhabitants. Overall, the disruption of regular daily operations caused by the epidemic has been observed to generate tension and anxiety, and college students are no exception to these effects (UNICEF, 2020).

Infectious illness outbreaks have a negative influence on student mental health, as seen in the recent SARS outbreak. Comparable effects have been identified between the COVID-19 and SARS outbreaks, revealing similar substantial connections. COVID-19 caused anxiety among 24.9 percent of university students in China (Cao et al., 2020).

One study indicated a significant frequency of mild to severe depression symptoms among Bangladeshi college students who had participated in COVID-19, particularly among those who lived with their families or in metropolitan regions. Furthermore, roughly 88 percent of pupils showed signs of mild to severe anxiousness (Islam et al., 2020).

During COVID-19, a cross-sectional research of Bangladeshi university students indicated that roughly 47 percent of students had mild to extremely severe depression, and 69.3 percent had mild to severe psychological damage as a result of the pandemic. Although the research for this group is scarce, these studies show that COVID-19 has mental health consequences for Bangladeshi college students (Khan et al., 2020).

1.2 Rationale

Depression and anxiety are two of the most common mental health concerns among young adults. Depression is a common disorder that affects 3.8 percent of the global population, including 5.0 percent of adults and 5.7 percent of those over the age of 60. Depression affects around 280 million people globally. Anxiety affects one out of every thirteen people globally, according to the World Health Organization (WHO). Anxiety disorders are the most prevalent mental illnesses worldwide, with the most common anxiety disorders being specific phobia, major depressive disorder, and social phobia (Bandelow et al., 2015).

COVID-19 pandemic is a global public health emergency that poses a threat to psychological well-being which provoked depression and anxiety in a large quantity (Wang et al., 2020).

A recent comprehensive analysis of COVID-19 pandemic-related mental health concerns in South Asian nations discovered that Bangladeshis are more vulnerable (Hossain et al., 2020).

Several factors are to bear responsibility for the deterioration of mental health among students during the pandemic. The Covid-19 has hampered personal communication .and increased student academic uncertainty is regarded as a significant contributor to depression and anxiety. The student's affiliation status, age, living area, monthly income of the participant's family and COVID-19 infection of the participants and their family members are major cause of depression and anxiety.

The goal of this research is to collect information from the students of University of Dhaka and Jahangirnagar University about their mental health. This study will be able to identify depression and anxiety in students, as well as their associated risk factors. Furthermore, the study intended to provide a pathway for the prevention of depression and anxiety in light of risk factors. Beside this it will assist in the establishment of ergonomic rules for their residual circumstances. This research will also aid in their awareness, particularly increase

the consciousness of our society and it also intends to put contribution to the establishment and enrichment of mental health. Besides that, it will aid professional growth, which is critical given the present state of the field and it is anticipated that knowledge enrichment will promote physiotherapy professional growth. During the data collecting phase of this study, the investigator can assist them in teaching and providing correct education and exercise procedure which can be beneficial for the students. It will aid in focusing and presenting the significance and value of physiotherapy services in Bangladeshi students.

1.2 Research question

- What is the prevalence of depression and anxiety among the students of Dhaka University and Jahangirnagar University during COVID-19 Pandemic?

1.4 Objective

1.4.1 General objectives

- To identify the prevalence of depression and anxiety among the students of University of Dhaka and Jahangirnagar University during COVID-19 Pandemic.

1.4.2 Specific objectives

- To identify the percentage of students who are suffering from depression and anxiety.
- To explore the socio-demographic characteristics of the students.
- To identify vulnerable gender affected from depression and depression.
- To assess the severity of depression and anxiety.
- To evaluate the possible causes that might be responsible for developing depression.

1.5 Conceptual framework

Independent variables   **Dependent variable**

Age

Gender of the participants

Living area of the participants

Educational status of the participants

Monthly family income

Exercise

Bad habits

Religious activity

Infection of the participants

Infection of the family members
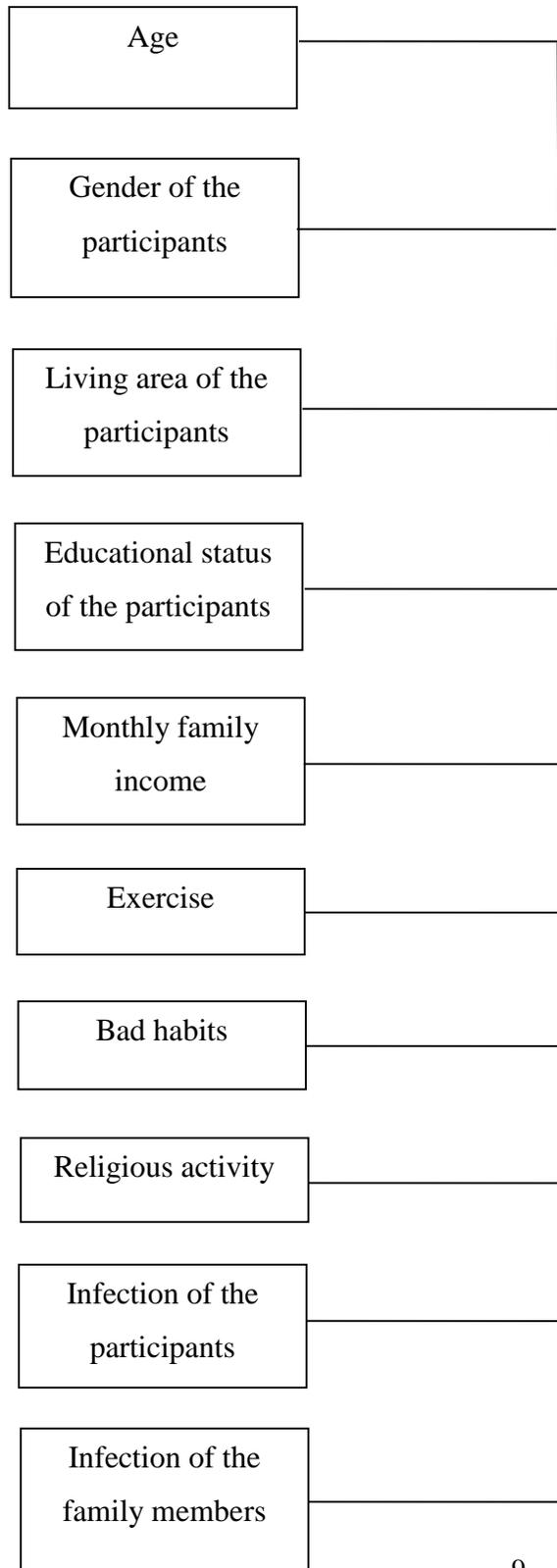
Depression
Anxiety
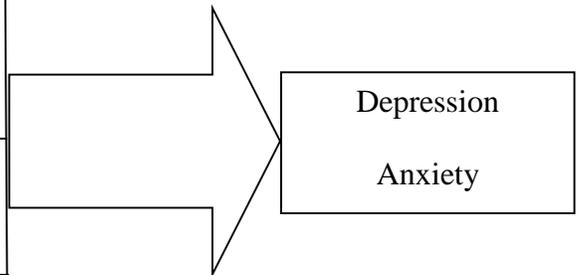
1.6 Operational definition

Prevalence: The total number of cases of a disease in a given population at a given time. The prevalence of depression and anxiety among the students of Dhaka University and Jahangirnagar University is determined by the number of students suffering from depression and anxiety per hundred students in the study (Hossain et al., 2022).

Risk indicator: A risk indicator is a mathematical formula or model that evaluates the possibility for some sort of resource deterioration (OECD, 2022).

COVID-19: Coronaviruses are a virus type. There are several types, some of which cause sickness. COVID-19 is a pandemic of respiratory sickness caused by SARS-CoV-2, a coronavirus discovered in 2019 (Gore et al., 2021).

Mental Health: Our emotional, psychological, and social well-being are all part of our mental health. It has an impact on the way we think, feel, and act. It also influences how we deal with stress, interact with people, and make decisions. Mental health is vital at all stages of life, including childhood, adolescence, and maturity (Brooks et al., 2020).

Depression: Depression (major depressive disorder) is a widespread and significant medical condition that has a negative impact on how we feel, think, and behave. It is also, thankfully, curable. Depression produces unhappiness and/or a loss of interest in previously appreciated activities. It can cause a slew of mental and physical issues, as well as a reduction in your capacity to operate at work and at home (Faisal et al., 2021).

Anxiety: Anxiety is a state of mind marked by tense sensations, concerned thoughts, and physical changes such as elevated blood pressure. Anxiety disorders are characterized by recurrent intrusive thoughts or concerns. They may avoid certain situations because they are concerned (Wang et al., 2020).

CHAPTER- II	LITERATURE REVIEW

In December 2019, unexpected cases of pneumonia caused by the novel Coronavirus (COVID-19) were detected in the Chinese city of Wuhan, and the virus's spread quickly became a worldwide health issue. In the last 20 years, there have been various viral infections, including SARS in 2003, influenza virus with the H1N1 subtype in 2009, Middle East Respiratory Syndrome (MERS) in 2012, and Ebola virus in 2014 (Wang et al., 2020).

Although COVID-19 is a novel coronavirus strain, it has been linked to illnesses ranging from the common cold to more serious illnesses like SARS and MERS. Fever, chills, cough, sore throat, myalgia, nausea and vomiting, and diarrhea are all symptoms of a Coronavirus infection. Men with a history of underlying illnesses are more likely to contract the virus and have poorer results. Severe instances of the condition can result in cardiac and respiratory failure, as well as acute respiratory syndrome and death (Chen et al., 2020).

During COVID- 19 pandemic people's lifestyles, psychological health, and relationship status were all affected by their fear of coronavirus infection. During this pandemic, 52.1% of individuals were frightened, and 57.8%–77.9% of them required mental support from their family and friends (Zhang and Ma, 2020). Public's well-being, protection, and health is harmed due to bewilderment, insecurity, stigma, and emotional isolation as well as communities' well-being, protection, and health (Pfefferbaum and North, 2020).

People experience the terror and worry of being infected with a disease during a health crisis, resulting in depression, tension, and anxiety. People who are afflicted with illnesses for which there is no therapies or immunizations and people become panicked, agitated, sad, and nervous. At the individual, community, national, and international levels, a wide range of psychological consequences have been reported. Individuals are more prone to be afraid of being ill or dying, of feeling helpless, and of being stereotyped by others. As a

result of the COVID-19 pandemic, people have endured depression and mental health concern (Das et al., 2021).

The pandemic has a negative impact on public mental health, perhaps resulting in psychological crises. Early detection of persons in the early stages of a psychiatric problem improves the effectiveness of intervention techniques. Health crises, such as the COVID-19 pandemic, cause psychological changes in both medical staff and population, and these changes are triggered by depression, anxiety, dread or insecurity. According to the World Health Organization (WHO), the global prevalence of anxiety and depression increased by 25% in the first year of the COVID-19 pandemic. The COVID-19 pandemic raised anxiety among college students owing to health-related worries, difficulty concentrating, sleep interruptions, decreased social connections, and concerns about academic performance, according to an interview survey research (WHO, 2021).

Another study indicated that interruptions to daily routines and studies during the epidemic were risk factors for sadness and anxiety. During the COVID outbreak, other risk variables such as physical activity and engagement in distance learning were detected in Chinese teenagers, as well as shared worries about academic delays and financial stress among university students (Chaturvedi, 2020).

Mental health is a crucial and necessary component of overall health. According to WHO "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." This concept implies that mental health encompasses more than the absence of mental diseases or impairments. Mental health is a condition of well-being in which a person recognizes his or her own potential, is able to cope with everyday stressors, works effectively, and contributes to his or her community. Mental health is essential to our ability to think, emote, interact with others, make a living, and enjoy life as a collective and individual human being. On this premise, mental health promotion, protection, and restoration may be seen as a critical concern for people, communities, and societies all over the world (Shigemura et al., 2020).

Two of the most frequent mental health issues among young adults are depression and anxiety. Depression is a prevalent condition that affects 3.8% of the world's population, including 5.0% of adults and 5.7% of persons over 60 years old. Around 280 million individuals worldwide suffer from depression. Depression is distinct from normal mood swings and short-term emotional reactions to ordinary stressors. Depression may be dangerous to one's health, especially if it is recurring and of moderate or severe degree. It can make the individual who is affected suffer severely and perform poorly at job, school, and in the family. Depression can lead to suicide in the worst-case scenario. Every year, around 700,000 individuals die by suicide. Suicide is the fourth highest cause of mortality among those aged 15 to 29 years (Nakhostin et al., 2020).

Anxiety is a sensation of tension accompanied by concerned thoughts and bodily changes such as elevated blood pressure. It's fairly unusual for someone suffering from anxiety to also be depressed, or vice versa. Anxiety disorders are found in nearly half of people diagnosed with depression. According to the World Health Organization (WHO), one in every thirteen people worldwide suffers from anxiety. As per the WHO, anxiety disorders are the most frequent mental disorders globally, with the most common anxiety disorders being specific phobia, major depressive disorder, and social phobia (WHO, 2021).

Depressive illness is one of the most frequent mental disorders in the general population, with a lifetime prevalence of 16.2 percent and a 12-month prevalence of 6.6 percent (Kessler et al., 2003).

Anxiety and depression impact everyone in a society to a considerable extent. According to recent research, persons who are isolated or quarantined feel considerable levels of anxiety, rage, disorientation, and stress (Brooks et al., 2020).

People's fear of the unknown nature of the Virus might lead to mental illnesses, according to studies done in China, the first country to be afflicted by this latest Virus outbreak (Shigemura et al., 2020).

Several Surveys has revealed increased incidence of anxiety and depression symptoms (Ahmed et al., 2020; Peng et al., 2020; Xiong et al., 2020). Nearly 30% of university students experienced anxiety symptoms, and more than 20% reported depression symptoms, according to a poll conducted from January 31 to February 3, 2020 (Chunyuan, 2021).

The global prevalence of anxiety and depression in the general population following the outbreak of COVID-19 was 31.9 and 33.7 percent, respectively, in a systematic review and meta-analysis (Salary et al., 2020). COVID-19 pandemics have exacerbated psychological responses and depressed symptoms in a variety of settings. During the COVID-19 pandemic in Brazil, 64.4% of medical students on the Patient Health Questionnaire (PHQ-9) experienced depressive symptoms, whereas 44.89% in India. Mild to severe anxiety and depression were prevalent in 38.1% and 27.6% in Iran. Higher anxiety levels were associated with female gender, poorer grade point average (GPA), and COVID-19 symptoms. Students with lower GPAs and a history of COVID-19 symptoms were more likely to develop depression (Nakhostin et al., 2020).

Medical students in Bangladesh, like the general public, have been shown to experience negative psychological effects as a result of the COVID-19 outbreak. During the COVID-19 pandemic, a cross-sectional survey found that 49.9% of 425 Bangladeshi medical students showed depressed symptoms as indicated by the Hospital Anxiety and Depression Scale (HADS) and 33% of them showed serious depression symptoms. When compared to male students, female students showed greater anxiety and depressed symptoms. When compared to no/minimally stressed pupils, students who were extremely worried about contracting the virus had a 3.5-fold greater chance of anxiety (2.7-fold) and depressed (3.5-fold) symptoms. Aside from the fear of being abused or humiliated on the way to the hospital or home, students' current emotional situation (agitation) had a statistically significant increased risk of anxiety following the COVID-19 pandemic (Safa et al., 2021).

62.3% of the 425 medical students were female, and 97.4% were single. Depressive symptoms were seen in nearly 80% of medical students, ranging from moderate to severe. Female students (adjusted OR = 1.8), those who struggled to stay away from social media (adjusted OR = 1.8), those who tried to be optimistic for better psychology (adjusted OR = 11.1), and those who always had a sleeping difficulty in the last 4 weeks (adjusted OR = 8.9) all had a significantly higher risk of depression. In addition, depressive symptoms remained nearly identical across four categories of respondents who had a sleeping disturbance in the previous four weeks (Always vs. Never AOR = 8.9, 95 percent CI: 2.6–31.4; Often vs. Never AOR = 7.9, 95 percent CI: 2.8–21.7; Sometimes vs. Never AOR = 5.6, 95 percent CI: 2.7–11.5; Occasionally vs. Never AOR = 5.0, 95 Additionally, students who kept an optimistic view for maintaining psychological health were more likely to be depressed during the COVID-19 pandemic (AOR = 11.1) (Puthran et al., 2021).

According to the findings, 392 (82.4 percent) students experience mild to severe depressive symptoms, while 389 (87.7%) students have medium to severe anxiety symptoms. More over 60% of the pupils were male (67.2%), with the remainder being female. One in every three pupils was from a rural region (35.1%). Less than a quarter of pupils (24.8 percent) claimed they were not behind in class, while slightly over 30 percent said they exercised frequently at home throughout the lockdown. 392 (82.4 %) of the 476 valid individuals were found to have mild to severe depression symptoms. Male students (67.35%) reported more depressed symptoms than female students (32.65%), whereas students in their early twenties (66.07 %) had more depressive symptoms than other age groups. Depression was especially common among students who did not engage in any physical activity (62.24%) or who felt they were falling behind in academic activities (76.78%). Furthermore, pupils who lived with their families (96.93%) and in urban areas (65.05%) had more depression symptoms. In the instance of anxiety, 389 students (87.7%) showed signs of mild to severe anxiety. Students who lived with their family were 2.6 times (95%ci: 1.418, 4.751) more likely to be depressed than those who did not. Students who provided supplemental lessons before lockdown, on the other hand, were 1.4 times (95% CI: 0.856, 2.227) more likely to exhibit mild to severe anxiety symptoms than those who did not. Students who were concerned about their academic activities were 1.8 times (95% CI: 1.099, 2.883) more

likely than students who were not concerned to have mild to severe anxiety symptoms. During the lockdown, kids who lived with their families were 1.8 times (95% CI: 1.021, 3.308) more likely to experience mild to severe anxiety symptoms than students who did not (Gritsenko et al., 2020).

The results demonstrate that the majority of this university student sample scored strongly for anxiety and depressive symptoms based on the cutoffs for those measures. 40.2 percent of students experienced moderate to severe anxiety symptoms (moderate at 23.6 percent and critical at 16.6%), while 72.1 percent of students had depressive symptoms. Aside from that, more than half of the participants had mental health conditions that ranged from moderate to bad (53.9%). In terms of views, 34.3% disagreed with the statement "little to be concerned about," and nearly two-thirds (62.5%) strongly disagreed with the prospect of a COVID-19 epidemic in Bangladesh. Concerning worry, 77.1% felt tense while thinking about COVID-19's impacts, and 88.1 percent were concerned about the following days. Only 9.5% said they had a complete comprehension of COVID-19. COVID-19 was known by 95.1% of the participants, and approximately three-quarters (77.1 percent) of them improved their hygiene habits as a result of it. By gender, age group, residential status, degree of education, and educational discipline, there are no significant associations between experiencing anxiety and depressive symptoms and mental health status. Anxiety symptoms were significantly predicted by worrying about the consequences of COVID-19 (=.40, p.004). COVID-19-related information (=.09, p=.004) was likewise unfavorable, but worrying about COVID-19's impacts (=.32, p.004) was a positive contributor to depressive symptoms. Worry (=.31, p.004) was also found to be a significant predictor of mental health status. All of these indicators together explained 18% of anxiety variability, 14% of depression variability, and 12% of mental health variability (Faisal et al., 2021).

Another research found that anxiety and depression are common among students. Mild to severe depression was reported in 161 (79%) of the total 203 respondents. Surprisingly, nearly everyone has mild to severe anxiety symptoms. 59% (119) of participants were men, and 97% (197) were between the ages of 18 and 25. Sixty-six percent (134) of students reside in cities, while the remainders live in rural regions. The majority of students (28.7%)

hailed from families with a monthly income ranging from 10,000 to 30,000 TK. 19.2% (39) of students came from homes with less than 10,000 TK a month, while 24.8% (51) came from rich families. COVID-19 did not infect the families of 86.7% (170) of the students. During the epidemic, about 5% (11) of students were absent. The majority (39 percent) were preoccupied on single activity. 43.9% (87) of students watched television, 46 percent (93) read and wrote, 49% (100) spent time with family and friends, and 42 percent (86) were involved in religious activities. Depicts variable descriptive characteristics and the frequency of anxiety and depression among them according to the findings, females had higher depression (moderate 24% and moderately severe 17%) and anxiety (17% moderate and 30% severe) than males (20% moderate and 1% moderately severe depression while 16% moderate and 14% severe anxiety). Only 3% of new graduates were found to have moderately severe to severe depression, whereas 23% and 13% of masters' students had moderately severe to severe depression, respectively. When compared to their younger peers, anxiety was shown to be more acute among students in their senior and master's years (23%). Students from urban areas, on the other hand, had less anxiety (16%). Although they had a higher proportion of moderate anxiety (26% vs. 17% among rural students), they also had a higher rate of severe anxiety (26% vs. 12% among rural students). Students with a family income of less than 10,000 TK had 5% moderately severe and severe depression, whereas those with a family income of more than 50000 TK had 20% and 14% moderately severe and severe depression, respectively. Students from low-income households experience 15 percent moderate anxiety, compared to 12% among students from high-income families, however high-income students experience severe anxiety more than students from low-income families (29% vs. 8%). Students whose family member has been in touch with COVID-19 had greater levels of depression (18% severe) and anxiety (30% severe) than students whose family member has not been in contact with COVID-19, who have 6% and 18% severe anxiety and depression, respectively. Three of the factors were shown to be important in determining anxiety in the regression analysis. Gender was shown to be relevant in influencing anxiety, implying that males are more likely than females to feel anxious (B= -0.78, p0.01). The present affiliation of the student with the institution and viewing television were also major factors in influencing anxiety, as revealed by descriptive analysis. Students in their senior year or

post-graduate year were more likely to be anxious than students in their first or second year (B= 0.19, p<0.5). ccording to statistics, 37% of students suffer from moderate to severe anxiety, while 54% suffer from moderate to severe depression. An Ordinal Logistic Regression analysis revealed that anxiety is linked to gender, current university affiliation status (e.g., sophomore, masters), and time spent watching television, whereas depression is linked to family member contact with COVID-19, multiple hobbies, and time spent reading and writing (Raihan et al., 2021).

59.16% of public university students were depressed, 53.99% had anxiety, and 46.95% had moderate to severe co-morbidity. 30.83%, 33.33%, and 24.17% of private university students, respectively, had moderate to severe depression, anxiety, and co-morbidity. Female students, students in their third and fourth years, students from nuclear families, and students who spent less time with their families all indicated greater levels of depression, anxiety, and co-morbidity (Shamsuddin et al., 2021).

CHAPTER III	METHODOLOGY

3.1 Study design

The researcher adopted a cross sectional design to conduct this investigation. This design functions as an effective method for gathering statistics in order to achieve the study's goal. Even though demand might arise over a lengthy period of time, the whole assessment of this study is obtained for the study participants at a single moment (Sedgwick, 2014). A cross-sectional research design is the most convenient for experimental or narrative epidemiology. One of the most prevalent types of study is to gather data about people's actions, performances, and knowledge based on physical characteristics. A cross sectional strategy is one in which the participant's interests are taken into account. It asks a large group of people questions on a certain problem or topic, which interests the investigators. Survey methodology was chosen as an effective strategy to collect data to fulfill the study's goal.

3.2 Study area

Data are collected from The University of Dhaka and The Jahangirnagar University. University of Dhaka (also known as the Dhaka University) is a public research university in Dhaka, Bangladesh. It is Bangladesh's first university and it has made important contributions to Bangladesh's modern history. Jahangirnagar University is a public research university Located at Savar, Dhaka, Bangladesh. It is Bangladesh's only totally residential university.

3.3 Study population

Students who were studying in University of Dhaka and Jahangirnagar University was collected using convenience sampling from this universities.

3.4 Method of sampling

The convenient sampling technique was used in this study considering the inclusion and exclusion criteria.

3.5 Sampling Technique

"Sampling" is the process of determining the proper quantity and type of participants to participate in a research (Cooksey, 2020). Due to a time constraint, the study was done using convenience sampling techniques, which was the easiest, cheapest, and fastest way of sample selection. The researcher employed this approach in order to get samples that met the study's criteria.

3.6 Sample size

The optimal sample size plays an important role in the design of a research study. A sample is a group of people chosen from the general population to participate in a study. A sample is a subset of the entire population. Depending on the population and the study's features, the sample size may be large or small (Charan & Biswas, 2013).

In a cross-sectional research with a finite sample frame, the equation for finite population correction is:

$$n = \frac{Z^2 pq}{d^2}$$

$$= \frac{(1.96)^2 \times 0..72 \times 0.28}{(0.05)^2}$$

$=309$

Here,

Sample size $= n$

Confidence interval, $Z = 1.96$

Prevalence of depression, $p = 0.72$ (Faisal et al., 2021)

Expected non-prevalence, $q = (1\text{-}p)$

$$= (1\text{-} 0.72)$$

$$= 0.28$$

Margin of error, $d = 0.05$

The actual sample size for this study is calculated as 309, but as the study performed as a part of academic research project and there were some limitations. So that 300 students was taken as the sample of this study.

3.7 Inclusion criteria of the study

- The students who are studying in University of Dhaka and Jahangirnagar University.
- Both male and female people are selected.
- Age group is between 18-30 years.
- Voluntary participation.
- First conducting students (Islam et al., 2020).

3.8 Exclusion criteria of the study

- Female who are pregnant.
- Students who are medically unstable.
- Students who are not-interested (Islam et al., 2020).

3.9 Data collection tools

- Verbal consent form
- Mobile phone
- File
- Paper
- Pen
- Pencil
- Calculator
- Laptop
- Printer

3.10 Measurement tools

Center for Epidemiologic Studies Depression Scale (CESD)

Radloff (1977) created the Center for Epidemiologic Studies Depressive Scale, a 20-item scale for evaluating depression symptoms. The American Psychiatric Association Diagnostic and Statistical Manual, Fifth Edition, defines Major Depressive Disorder as having nine separate symptom categories (DSM-V).

These are the symptom groups:
1. Sadness (dysphoria)
2. Loss of Interest (anhedonia)
3. Appetite
4. Sleep
5. Thinking / concentration
6. Guilt (worthlessness)
7. Tired (fatigue)
8. Movement (agitation)
9. Suicidal ideation

The response values for each question are:
- Not at all or less than one day = 0
- 1-2 days = 1
- 3-4 days = 2
- 5-7 days = 3
- Nearly every day for 2 weeks = 4

The range of potential scores, like in the CESD, is 0 (for those who answer "not at all or less than one day" to all 20 questions) to 60 (for those who answer "5-7 days" or "almost every day for two weeks" to all 20 questions).

Generalized Anxiety Disorder 7 (GAD-7)

The GAD-7 is a seven-item questionnaire that may be used to assess for generalized anxiety symptoms (Spitzer et al. 2006). On a 4-point scale from 0 (not at all sure) to 3 (almost every day), participants scored their sentiments in response to seven generic statements on how often they had been disturbed by the provided difficulties during the previous two weeks (e.g., "Feeling nervous, anxious, or on edge"). The total score ranged from 0 to 21, with higher levels indicating greater anxiety. Spitzer et al. (2006) found this scale to have excellent reliabilities and criteria, concept, factorial, and procedural validity. A GAD-7 score of 10 or higher is an appropriate cutoff value for detecting instances with GAD. On the GAD-7, cut points of 5, 10, and 15 might be interpreted as mild, moderate, and severe levels of anxiety. Although its responsiveness to change has yet to be validated in treatment research, the GAD-7 may be particularly effective in measuring symptom intensity and tracking change over time.

3.11 Data collection procedure

At the beginning, the researcher said that the participant had the freedom to refuse to answer any question while completing the questionnaire. They might leave the study at any moment. The researcher also explained the purpose of the study to all participants. Participants had agreed that no personal information would be disclosed. A written consent form was used by the researcher to get permission from each volunteer participant. Following the participant's agreement, a standard questionnaire was utilized to identify the complaint and collect demographic information. Questions were asked according to the Bangla format. For conducting the interview, the researcher conducted a face to face interview and asked questions. Physical environment was considered strictly. Stimuli that could distract interviewee were removed to ensure adequate attention of interview. Interviewee was asked questions alone as much as possible with consent as sometimes close relatives can guide answer for them. The researcher built a report and clarified questions during the interview. Face to face interviews were the most effective way to get full cooperation of the participant in a survey.

Face-to-face interviews were also useful for describing demographic characteristics. During the conversation, face-to-face interviews were utilized to collect particular data that defines the population descriptively. Depending on the participants' comprehension level, the questions were occasionally described in the original language so that the patients could fully comprehend and respond appropriately. To avoid inaccuracies, the researcher gathered all of the data himself.

3.12 Data Analysis

Data was analyzed using descriptive statistics. Methods of characterizing a group of findings in terms of its most noteworthy properties are referred to as descriptive statistics (Cooksey, 2009). The data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0 software. The variables were labeled in a list, and the researcher created a computer-based data definition record file that had an ordered list of variables. The researcher named the variables in SPSS variable view and defined the data types, values, decimal, label alignment, and measurement level. The following step was to clean fresh data files and double-check the entered data set to ensure that all data was correctly translated from the questionnaire sheet to the SPSS data view. The raw data was then ready for SPSS analysis. Data was reviewed using descriptive statistics, which created and showed percentages using bar graphs, tables, pie charts, and other approaches. Microsoft Office Excel 2013 is used to create the bar graph and pie charts. As a consequence of this poll, a great deal of information was acquired. All of the data shed light on the challenges that ischemic stroke patients confront while performing home exercise.

Chi square (χ2) Test

The most common discrete data hypothesis testing method is the Chi square (χ2) test. It is a statistically significant non-parametric test for bivibrate tabular analysis with a contingency table. The Chi square (χ2) test was used in this investigation to assess the relationships between two variables. It was used to assess the statistical significance of bivariate table data.

Assumption

Different and Independent variable

Variables were quantitative

Normal Distribution of the variable

Formula: the test statistics follow:

$\chi2 = \Sigma(O-E)2ki=1/E$

Here, χ2 = Chi square value

Σ = The sum of

O = Observed count

E = Expected count

Chi square is the sum of the squared differences between observed (O) and the expected (E) data divided by expected (E) data in all possible categories.

3.13 Inform consent

Every patient will be required to provide verbal and written informed consent. And guarantee that every patient is free to leave at any moment during data collection, and that participants are not influenced by the data collector. The researcher rigorously protected participant confidentiality regarding their illness and treatments. The research was carried out in a clean and methodical manner.

3.14 Ethical considerations

To perform this research, a systematic approach was used. The proposed study plan was initially accepted by the Institutional Review Board (IRB), which is the ethical body of Bangladesh Health Professional Institute (BHPI), Savar, Dhaka. To accomplish this research, the World Health Organization (WHO) and Bangladesh Medical Research Council (BMRC) guidelines were also followed. After gaining permission from the authorities, the investigator began this investigation.

CHAPTER- IV   RESULT

Data were analyzed by descriptive statistics and computed through percentages then submitted by tables, bar chart and pie chart.

4.1 Socio-demographic profile of the participants

Table 1: Socio demographic information of the participants-

Variables	Traits	Frequency	Percent (%)
	19-22 years	82	30.67%
Age	23-26 years	158	63.34%
	27-30 years	18	6%
Gender	Male	147	49%
	Female	153	51%
	Rural	65	21%
Living area	Semirural	94	31.33%
	Urban	141	47%
	Graduation	198	66%
Educational status	Post graduate	31	10.33%
	Masters	71	23.67%
	10000 - 20000Tk	103	36%
	21000 - 40000Tk	143	47.65%
Monthly Family	41000 - 60000Tk	36	12%
income	61000 - 100000Tk	11	3.66%
	110000 - 200000Tk	2	.67%
Exercise	Yes	174	58%
	No	126	42%

Bad Habit	Yes	111	37%
	No	189	63%
Religious activity	Yes	219	73%
	No	81	27%

4.1.1 Age of the participants

In Table-1: The researcher reveals that among the 300 participants most of them were in between 23-26 years were 63.34% (n=158). 19-22 years were 30.67% (n=82), 27-30 years were 6% (n=18).
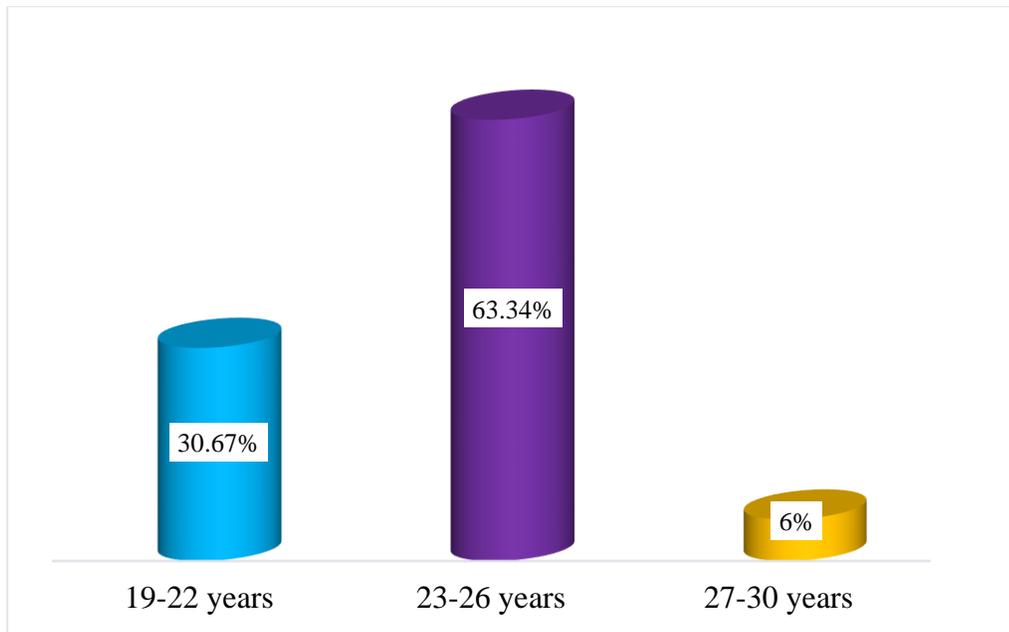

Figure 1: Age of the participants

4.1.2 Gender of the participants

In Table-1: In this study, 49% (n=147) participants were male and 51% (n=153) participants were female.
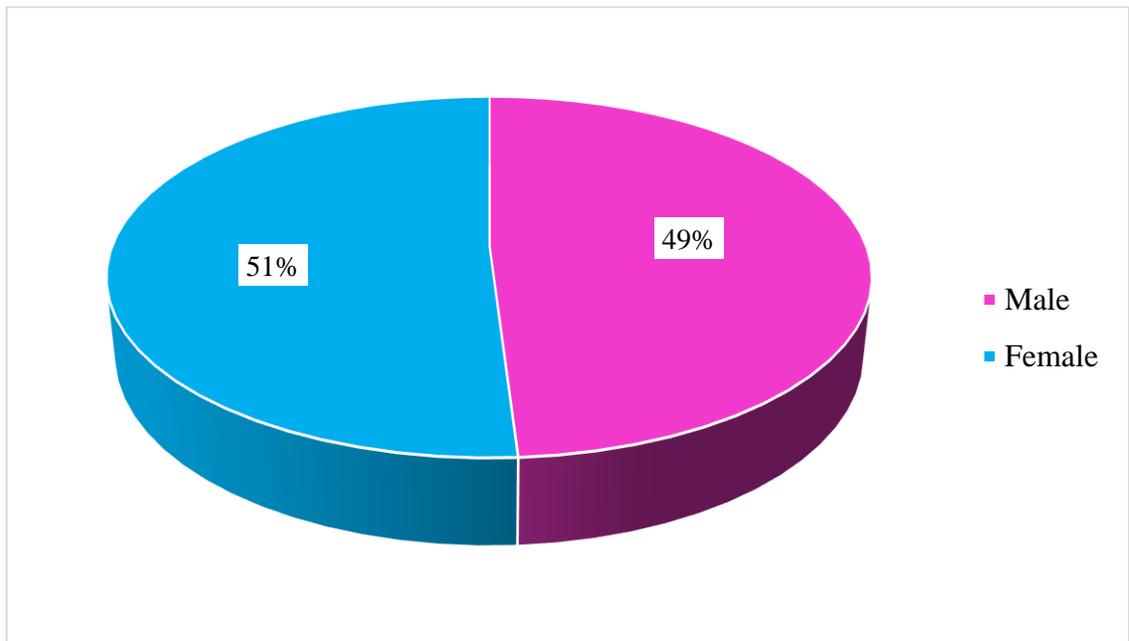

Figure 2: Gender of the participants

4.1.3 Living area of the participants

In Table-1: Among 300 participants, 21% (n=65) participants lived in rural area, 31.33% (n=94) participants resided in semi urban area and 47% (n=141) participants dwelled in urban area.
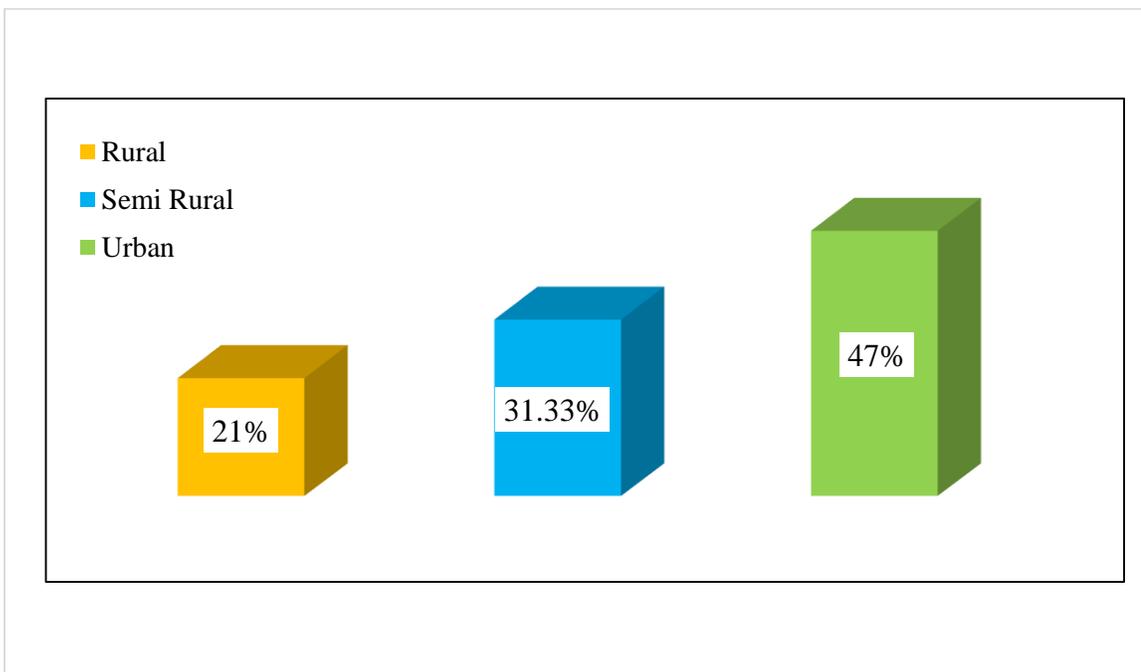
**Figure 3: Living area of the participants**

4.1.4 Educational status of the participants

In Table-1: This bar chart focused that the educational status of 66% (n=198) participants were graduation level which was the most prominent than other values. 10.33% (n=31) participants were post-graduate, 23.67% (n=71) participants were in masters level.
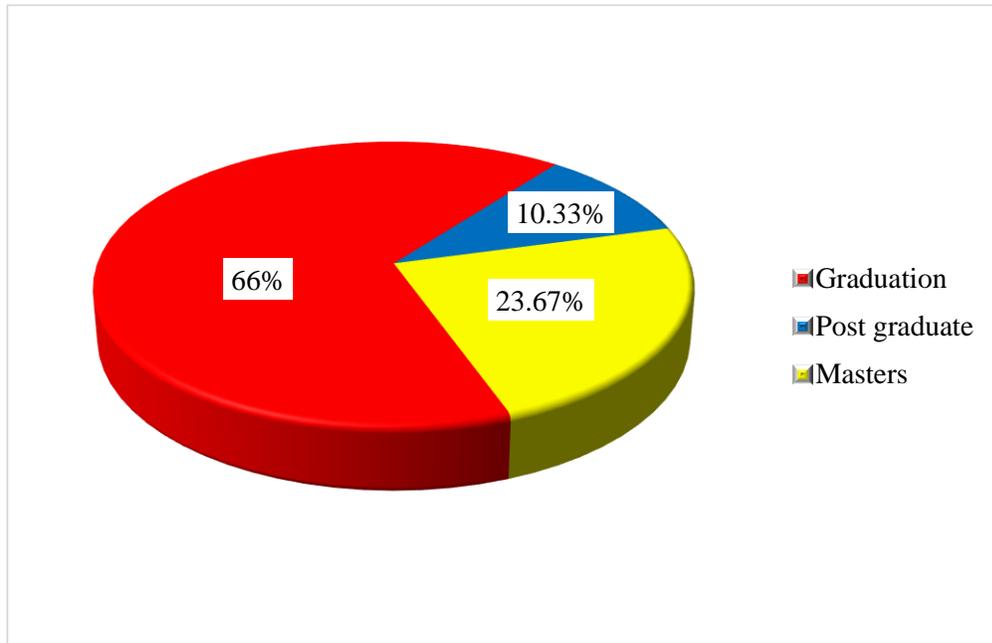
Figure 4: Educational status of the participants

4.1.5 Monthly family income

In Table-1: Among 300 participants, 36% (n=103) participants monthly family income was between 10000 to 20000 Tk, 47.65% (n=143) participants monthly family income was between 21000 to 40000 Tk, 12% (n=36) participants monthly family income was between 41000 to 60000 Tk, 3.66% (n=11) participants monthly family income was between 61000 to 100000 Tk and 0.67% (n=2) participants monthly family income was between 110000 to 200000 Tk.
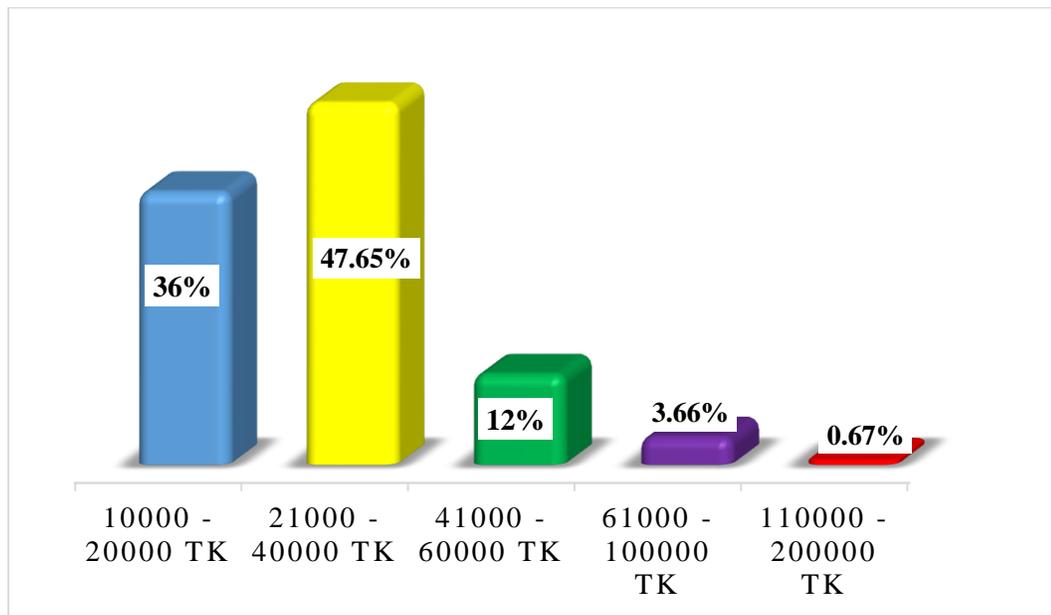
Figure 5: Monthly family income of the participants

4.1.6 Exercise

In Table-1: Among 300 participants, 58% (n=174) did exercise and 42% (n=126) didn't exercise.
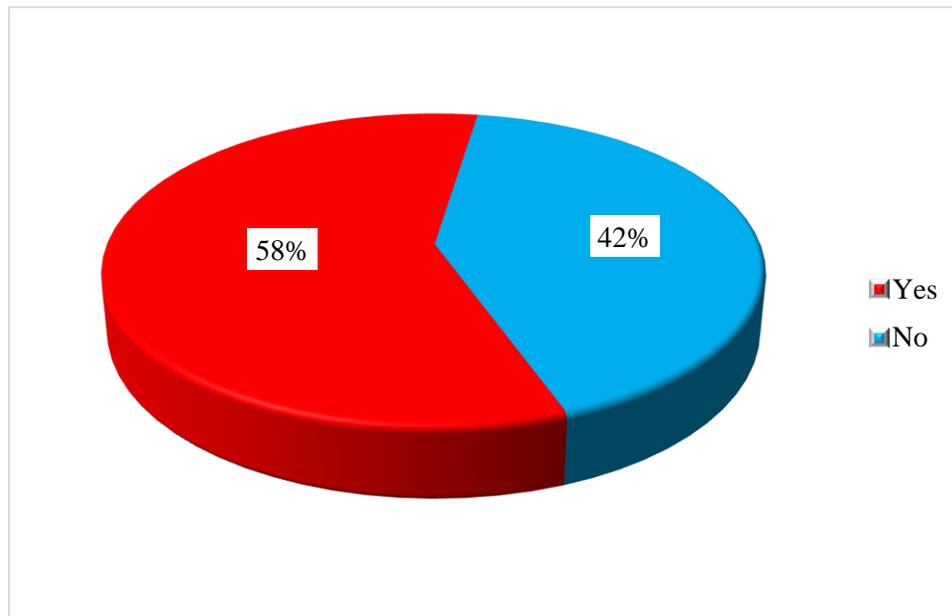
Figure 6: Exercise

4.1.7 Bad habit

In Table-1: Among 300 participants, 37% (n=111) students had bad habit and 63% (n=189) hadn't any bad habit.
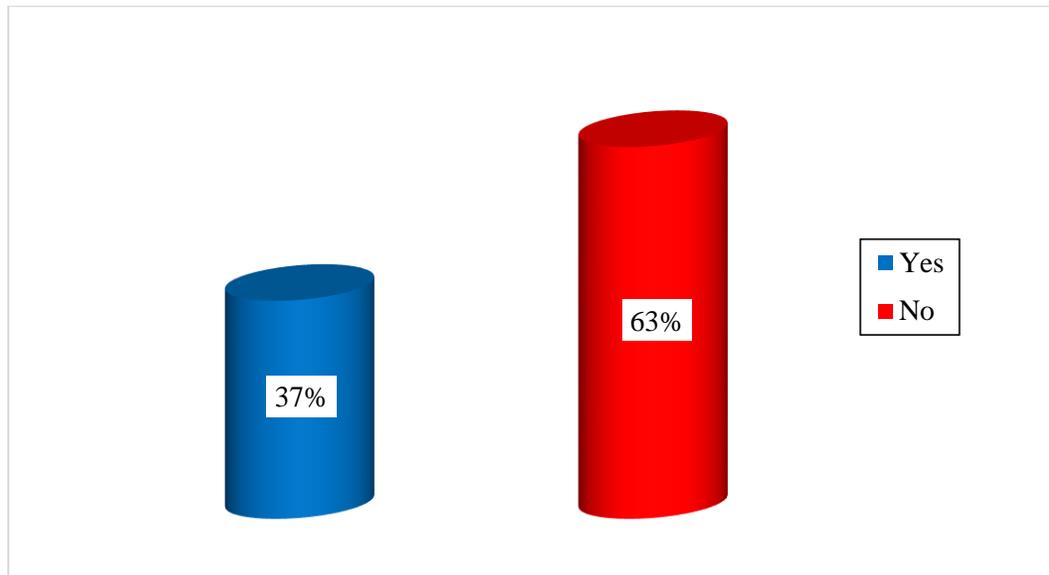
Figure7: Bad habit

4.1.8 Religious activity

In Table-1: Among 300 participants, 73% (n=219) students did religious activity 27% (n=81) didn't perform any religious activity.
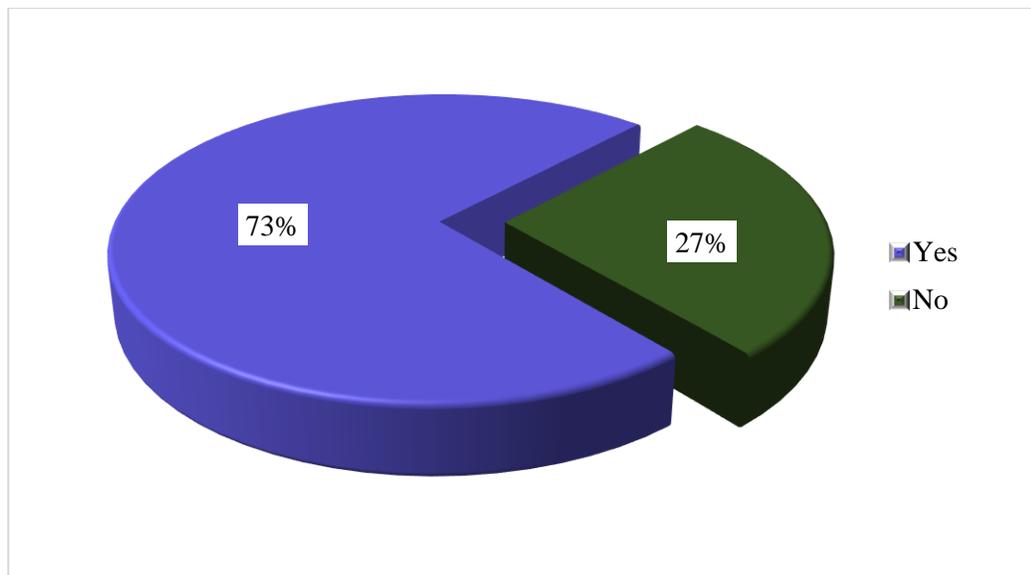
Figure 8: Religious activity

4.2 COVID-19 infection of the participants and family members

Table 2: COVID-19 infection related information of the participants and family members-

Variables	Traits	Frequency	Percent (%)
Covid-19 infection of the participants	Positive	66	22%
	Negative	234	78%
Covid-19 infection of the family members	Positive	90	30%
	Negative	210	70%

4.2.1 COVID-19 infection of the participants

In Table-2: Among 300 participants, 22% (n=66) participants were diagnosed COVID-19 positive and 78% (234) participants were never diagnosed COVID-19 positive.
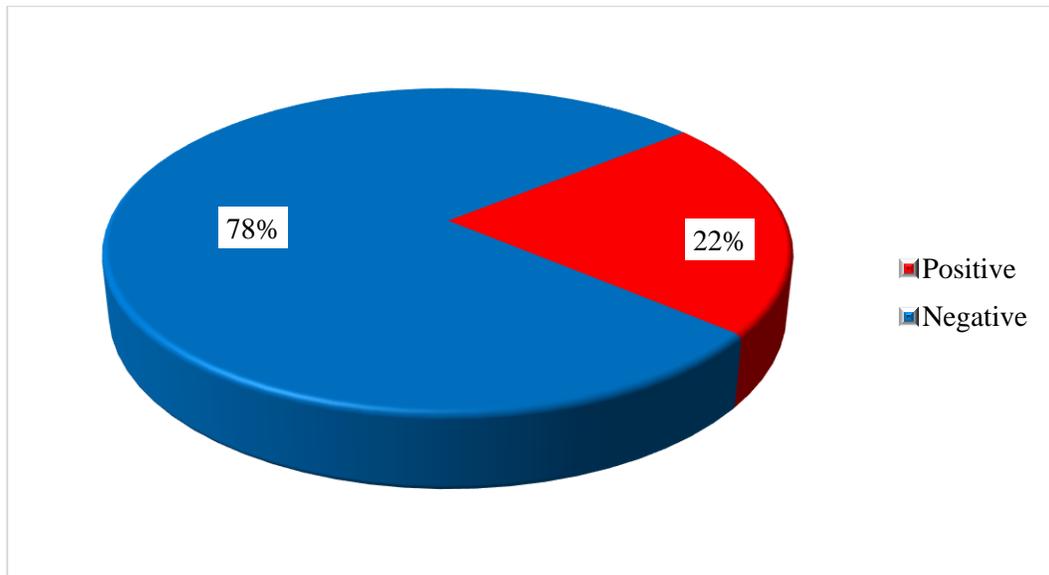
Figure 9: COVID - 19 infection of the participants

4.2.2 COVID-19 infection of the family members

In Table-2: Among 300 participants, 30% (n=90) family members were diagnosed COVID-19 positive and 70% (210) family members were never diagnosed COVID-19 positive.
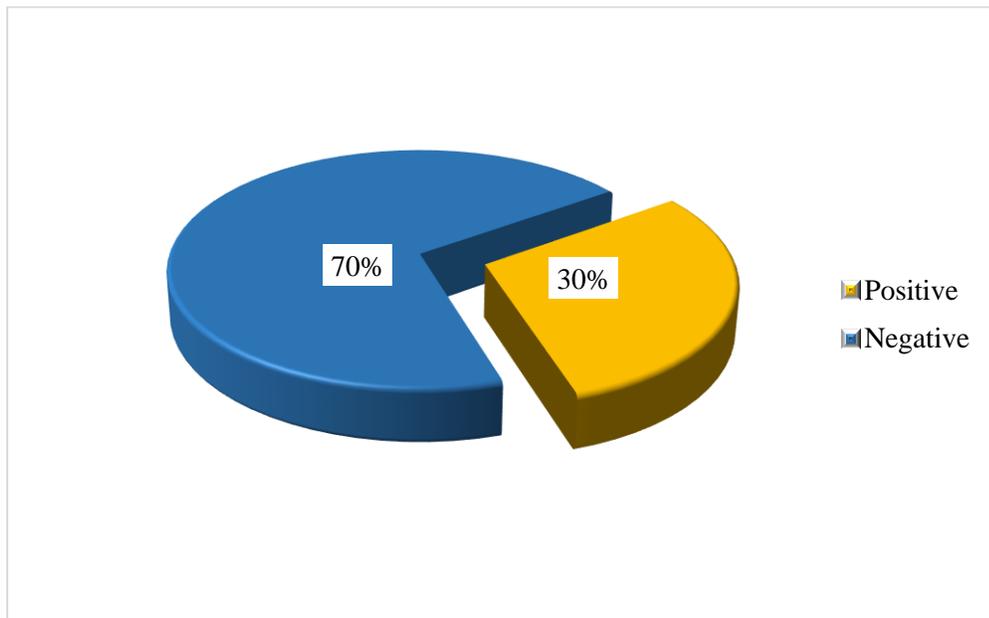
Figure 10: COVID - 19 infection of the family members

4.3 Descriptive characteristics of the responds

Table 3: Center for Epidemiologic Studies Depression Scale (CESD), Generalized Anxiety Disorder 7 (GAD-7)

Variable		Percent% (Frequency)
Center for Epidemiologic Studies Depression Scale (CESD)	None	22.33% (n=67)
	Subthreshold depressive symptoms	75% (n=225)
	Possible major depressive episodes	1% (n=3)
	Probable major depressive episodes	1% (n=3)
	Major depressive episodes	.67% (n=2)
Generalized Anxiety Disorder 7 (GAD-7)	None	20% (n=60)
	Mild	42.33% (n=127)
	Moderate	21.67% (n=65)
	Severe	16% (n=48)

4.3.1 Center for Epidemiologic Studies Depression Scale (CESD)

In Table-3: Among the 300 participants, 22.33% (n=67) had no significant depression symptoms, 75% (n=225) had Subthreshold depressive symptoms, 1% (n=3) had Possible major depressive episodes, 1% (n=3) Probable major depressive episodes and .67% (n=2) had Major depressive episodes.

4.3.2 Generalized Anxiety Disorder 7 (GAD-7)

In Table-3: Among the 300 participants, 20% (n=60) had no significant anxiety symptoms, 42.33% (n=127) had mild anxiety symptoms, 21.67% (n=65) had moderate anxiety symptoms and 16% (n=48) had severe anxiety symptoms.

4.4 Analysis between subjects for association

The relationship is revealed using the Chi-square test. If the P-value is <0.05, the result is significant, indicating that there is a relationship between the variables.

4.4.1 Association of age of the participants with depression and anxiety

Association of age and depression	Chi-Square	P-Value
	47.62	.00

Association of age and anxiety	Chi-Square	P-Value
	59.70	.00

There is strong association of age and depression as their found P-value is 0.00 which is <0.05.

The P-value for the relationship between age and anxiety is 0.00, which is less than 0.05. As a result, the finding is highly significant, indicating that there is strong association of age of the paricipants with depression and anxiety and age is a factor of depression and anxiety.

4.4.2 Association of gender of the participants with depression and anxiety

Association of gender and depression	Chi-Square	P-Value
	43.37	.04

Association of gender and anxiety	Chi-Square	P-Value
	20.19	.01

The P-value for the relationship between gender and depression is 0.04 and gender and anxiety is 0.01 whose are less than 0.05.

As a result, the finding is significant, indicating that there is association between male and female students with relation to depression and anxiety and gender is an important factor for depression and anxiety.

4.4.3 Association of living area of the participants with depression and anxiety

Association of living area of the participants and depression	Chi-Square	P-Value
	41.19	.00

Association of living area of the participants and anxiety	Chi-Square	P-Value
	55.14	.08

The observed P-value for association of living area of the participants and depression is 0.00 which is less than 0.05 that indicates there is association between living area of the participants and depression.

The observed P-value for association of living area of the participants and anxiety is 0.08 which is more than 0.05 that indicates there is no association between living area of the participants and anxiety.

4.4.4 Association of educational status of the participants with depression and anxiety

Association of educational status of the participants and depression	Chi-Square	P-Value
	49.58	.00

Association of educational status of the participants and anxiety	Chi-Square	P-Value
	63.96	.02

The P-value for the relationship between educational status of the participants and depression is 0.00 and between educational status of the participants and anxiety is 0.02, which is less than 0.05.

The finding is highly significant, indicating that there is association between educational status of the participants and depression and between educational status of the participants and anxiety. Graduated and masters level student were much depressed and felt mild to moderate anxiety due to scarcity of jobs during COVID-19 pandemic.

4.4.5 Association of monthly family income with depression and anxiety

Association of monthly family income and depression	Chi-Square	P-Value
	35.65	.00

Association of monthly family income and anxiety	Chi-Square	P-Value
	76.92	.00

There is strong association between monthly income of the participants family with relation to depression and anxiety as their found P-value is 0.00 whose are <0.05.

During the pandemic many people lost their jobs and earning persons of the family couldn't earn much and this factor affected student's mental health.

4.4.6 Association of exercise with depression and anxiety

Association of exercise and depression	Chi-Square	P-Value
	43.40	.62

Association of exercise and anxiety	Chi-Square	P-Value
	19.90	.53

The observed P-value for association of exercise with relation to depression and anxiety is 0.62 and 0.53 which is more than 0.05 that indicates there is no association of exercise with relation to depression and anxiety.

4.4.7 Association of bad habit, depression and anxiety

Association of bad habit and depression	Chi-Square	P-Value
	53.91	.33

Association of bad habit and depression	Chi-Square	P-Value
	20.78	.47

The observed P-value for association of bad habit with relation to depression and anxiety is 0.33 and 0.47 which is more than 0.05 that indicates there is association of bad habit with relation to depression and anxiety.

Bad habit leads to vulnerable mental health and it's a cause of depression and anxiety.

4.4.8 Association of religious activity with depression and anxiety:

Association of religious activity and depression	Chi-Square	P-Value
	47.60	.57

Association of religious activity and anxiety	Chi-Square	P-Value
	19.80	.53

The observed P-value for association of religious activity with relation to depression and anxiety is 0.57 and 0.53 which is more than 0.05 that indicates there is no association of exercise with relation to depression and anxiety.

4.4.9 Association of COVID-19 infection of the participants with depression and anxiety

Association of COVID-19 infection of participants and depression	Chi-Square	P-Value
	75.09	.01

Association of COVID-19 infection of participants and anxiety	Chi-Square	P-Value
	19.82	.03

The observed P-value for association of COVID-19 infection of the family members with relation to depression and anxiety is 0.01 and 0.03 which is less than 0.05 that indicates there is association of COVID-19 infection of the family members with relation to depression and anxiety and COVID- 19 is a cause of depression and anxiety of the students.

4.4.10 Association of COVID-19 infection of the family members with depression and anxiety

Association of COVID-19 infection of family members and depression	Chi-Square	P-Value
	46.93	.04

Association of COVID-19 infection of family members and anxiety	Chi-Square	P-Value
	19.82	.01

The observed P-value for association of COVID-19 infection of the family members with relation to depression and anxiety is 0.04 and 0.01 which is less than 0.05 that indicates there association of COVID-19 infection of the family members with relation to depression and anxiety.

CHAPTER- V	DISCUSSION

The COVID-19 epidemic emerged as the most catastrophic and complex public health issue in modern history. Aside from the rising mortality rate, nations throughout the world have also seen an increase in severe psychological effects, such as anxiety and despair among individuals of all ages. University students are not immune, since all educational institutions have been closed for longer than normal, and in Bangladesh, for more than two months in a succession. In general, such closure creates uncertainty regarding academic and professional careers among students and exacerbates ongoing mental health issues among university students (Hossain et al., 2020). Given these conditions, the primary purpose of this study was to look at the prevalence of depression and anxiety among the students of University of Dhaka and Jahangirnagar University during the COVID-19 pandemic, as well as the variables that influence the occurrence of depression and anxiety disorder.

The findings revealed that students have significant rates of anxiety and depression symptoms, as well as moderate to poor mental health scores based on the cut scores for their respective measures. The findings of the cross-sectional survey indicate that more than two-thirds of the students were experiencing mild to severe depression (77.67%) and among them 75% (n=225) have subthreshold depressive symptoms, 1% (n=3) have possible major depressive episodes, 1% (n=3) probable major depressive episodes, .67% (n=2) have major depressive episodes and mild to severe anxiety (80%) and among them 42.33% (n=127) have mild anxiety, 21.67% (n=65) have moderate anxiety and 16% (n=48) have severe anxiety which was comparable to India (74.6%) and Brazil (64.41%), but much higher than Nepal (5.5%) and Iran (25.6%) (Nakhostin et al., 2020). Previous research in Bangladesh found both depression and anxiety among higher education students. For example, according to a web-based cross-sectional study of university students the 82.4% were suffering from mild to severe depression and 87.7% were suffering from anxiety (Islam et al., 2020). Another study demonstrates that the majority of this university student sample scored strongly for anxiety and depression based.

40.2% of students exhibited moderate to severe anxiety symptoms (moderate at 23.6% and critical at 16.6%), whereas 72.1% had depression (Faisal et al., 2021). There is other more studies which found that higher education students are suffering from depression and anxiety during COVID-19 Pandemic. 59.16% of public university students had depression and 53.99% experienced moderate to severe anxiety. 30.83%, 33.33%, and 24.17% of private university students experienced depression and anxiety, respectively (Shamsuddin et al., 2021). Another study shows that 54% students experienced moderate to severe depression and 37% students experienced 37% moderate to severe anxiety. In comparison to previous researches, this study reveals that university students in Bangladesh are experiencing an unprecedented increase in depression and anxiety as a result of the current worldwide pandemic crisis.

This study discovered that a greater degree of depression and anxiety was associated to the age and educational status of the students. Some previous researches on mental health among students in quarantine failed to identify or investigate the mental health status among students of various years (Islam et al., 2020; Khan et al., 2020). This study examined student's current connection status at university and discovered that years of university education had a strong link with depression and anxiety. Graduate, post-graduate, and masters level students are more likely to experience anxiety and depression than freshman students. Previous research (before to the pandemic) revealed that freshmen students were more prone to experience depression and anxiety (Savitsky et al., 2020).

Post-graduate and masters level students may not feel depression and anxiety, although a selection bias may be at work here. Even students with higher degrees of anxiety do not continue their education; so, only students with stable mental health may pursue senior and post-graduate courses. However, a comparable study indicated that other students experienced higher levels of anxiety than freshmen during this isolation (Eleftheriades., 2020). As a result, students in their post-graduate or masters level at university have experienced worry in situations where selection bias does not exist. This issue might be caused by a halt in academic advancement and uncertainty about career options.

Aside from the issues outlined above, this study identified depression or anxiety are associated with male and female students. A previous Bangladeshi study also stated that gender status was revealed to be substantially associated to depression and anxiety (Hossain et al., 2019).

However, another study also stated that there is no significant differences in depression or anxiety between male and female students .This study discovered that a greater degree of depression and anxiety is associated to bad habits but there is no association of exercise and religious activity (Sifat, 2020).

This study discovered that a greater degree of depression and anxiety was associated to the living area of the students. The findings also imply that university student's participation in private tutoring is an important element in understanding the increased frequency of depression and anxiety among them. In Bangladesh, many students work part-time jobs, such as private tutoring, to help pay for their education and occasionally to support their families, and their reliance on private tutoring as a part-time job is progressively rising. However, being unable to give tuition during a lockdown means losing regular revenue and being out of work. The most prominent factors leading to the elevated prevalence of depression and anxiety among university students in Bangladesh are extended unemployment and financial uncertainty (Banna et al., 2020).

According to one study, unemployment is highly connected with mental and somatic problems, which may restrict persons' opportunities for emotions of achievement, accomplishment, and pleasure and finally lead to psychological functioning impairment. Loss of job may also have an impact on self-esteem, since studies have shown that a lack of family support during unemployment has a negative impact on an individual's mental well-being (Gore et al., 2015).

The abrupt joblessness and financial uncertainty appear to be putting university students in an uncomfortable situation, harming their socioeconomic and mental well-being. It is well acknowledged that living among family members provides individuals with comfort, which reduces sadness and anxiety. Because healthy family circumstances frequently improve the mental health of vulnerable kids suffering from depression or anxiety. However, the pandemic has put great financial strain on families. The majority of families have been plagued by excessive debts and a loss in income, leaving family members devastated (Fegert et al., 2020).

This study identified that there is significant association in depression or anxiety with relation to the COVID-19 infection of students and family members. Which has a big effect on student's mentality and their psychological state.

5.1 Limitations of the study

There are some limitations in most of the research. Some limitations were also framed for this study that might influence the accuracy of this research. As it was the first research project for the researcher and he was a 4th year B.Sc. in physiotherapy student, he is still learning many strategies and approaches regarding the practical atmosphere of research. So, there might be some mistakes that should be overlooked by the supervisor and the honorable teachers.

Several factors influence the current study's strengths and limitations. During the COVID-19 pandemic, face-to-face interviews with proper precautions enable for the assessment of the prevalence of depression and anxiety among university students while keeping the WHO-recommended "social distance". Additionally, the survey data was collected using globally established standardized procedures for quantitative analysis. Instead of random samples, the convenient sampling technique was chosen due to the restricted resources available and the time limitation. The found components in this cross-sectional study are classified as related factors, which might be either the causes or the outcomes of depression or anxiety. However, the use of a validated screening questionnaire was seen to be a cost-effective strategy to investigating the issue in general, hence it was adopted in this investigation. Because the research approach was unable to reach those with medically assessed depression and anxiety symptoms, the results may not completely reflect the intensity of depressed and anxiety symptoms among students. Another drawback of this study is that it did not use measures especially intended for the COVID-19 pandemic, such as the coronavirus anxiety scale (CAS). Meanwhile, it would be great to undertake a prospective research on the same set of participants using instruments created specifically for the COVID-19 pandemic after a period of time to offer clear findings and assist the need for a targeted public health strategy.

CHAPTER- VI	CONCLUSION AND RECOMENDATION

6.1 Conclusion

The COVID-19's confinement, self-isolation, and social alienation have exacerbated psychological issues among Bangladeshis. The COVID-19 pandemic has caused mental stress among college and university students because of academic delays, virus dread, financial instability, and career insecurity (Cao et al., 2020). The purpose of this study was to find out the prevalence of depression and anxiety among the students of University of Dhaka and Jahangirnagar University during COVID-19 Pandemic. The study, like earlier studies, discovered a significant prevalence of depression and anxiety among students and that a variety of causes were responsible for psychological stress among students during the quarantine. The study also discovered that during this crisis, a higher degree of depression and anxiety was substantially associated to student's age, gender, educational status, living area and monthly family income and COVID-19 infection of the students and family members.

6.2 Recommendation

A suggestion emerges from the circumstances in which the study was carried out. The aim of the study was to identify the prevalence of depression and anxiety among the students of University of Dhaka and Jahangirnagar University during COVID-19 Pandemic. As this study only focuses on the identification and find out prevalence and depression so additional research is recommended how to solve these issues. The research period was short, it should be repeated over a longer length of time in the future. In the future, the sample size should be increased to obtain more reliable and relevant results. If more research is conducted, face-to-face data collecting is advised. For this study, the investigator only used individuals from two colleges. To summarize the findings, samples from all universities throughout Bangladesh should be collected.

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Appendix

Appendix-1 (A)

The Chairman
Institutional Review Board (IRB)
Bangladesh Health Professional Institute (BHPI), CRP
Savar, Dhaka-1343.Bangladesh

Subject: Application for review and ethical approval.

Dear sir,

With due respect, I am Jannatul Hasan, student of final year B.Sc. in Physiotherapy program at Bangladesh Health Professional Institute (BHPI) the academic institute of Centre for the Rehabilitation of the Paralysed (CRP) under the Faculty of Medicine, University of Dhaka. As per the course curriculum, I have to conduct a research project entitled **"Level of Depression and Anxiety among the Students of University of Dhaka and Jahangirnagar University during Covid-19 Pandemic"** under the supervision of supervision of Fabiha Alam, Lecturer Physiotherapy, BHPI, CRP, Savar, Dhaka-1343.

The purpose of this study is to explore prevalence of depression and anxiety among the students of Dhaka University and Jahangirnagar University during Covid-19 Pandemic. The study involves face-to-face and google form interview to complete the survey and this may take 5 to 10 minutes to fill in the questionnaire and there is no likelihood of any harm to the participants. Data collectors will receive informed consent from all participants and the collected data will be kept confidential.

Therefore, I look forward to having your kind approval for the research project and to start data collection. I can also assure you that I will maintain all the requirements for study.

Sincerely,

Jannatul Hasan

Jannatul Hasan
4th Year B.Sc. in Physiotherapy
Session: 2015 – 2016,
BHPI, CRP, Savar, Dhaka-1343, Bangladesh.

Recommendation from the Supervisor

Fabiha

Fabiha Alam
Lecturer, Department of Physiotherapy, BHPI.
CRP, Savar, Dhaka-1343.

Thesis presentation date: 17th October 2021

Shofiq

Head of Department
B.Sc. in Physiotherapy, BHPI.

Md. Shofiqul Islam
Associate Professor & Head
Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

Appendix-1 (B)

Ref: Date:

CRP/BHPI/IRB/02/2022/557   20/02/2022

Jannatul Hasan
4th Year B.Sc. in Physiotherapy
Session: 2015 – 2016
BHPI, CRP, Savar, Dhaka- 1343, Bangladesh.

Subject: Approval of the research project proposal **"Level of Depression and Anxiety among the Students of University of Dhaka and Jahangirnagar University during Covid-19 Pandemic"** by ethics committee.

Dear Jannatul Hasan,
Congratulations.
The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the principal investigator and Fabiha Alam as thesis supervisor. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation/thesis/research Proposal
2	Questionnaire (English & Bengali version)
3	Information sheet & consent form.

The purpose of this study is to explore prevalence of depression and anxiety among the students of University of Dhaka and Jahangirnagar University during Covid-19 pandemic. Since the study involves questionnaire that takes maximum 05-10 minutes and have no likelihood of any harm to the participants, the members of the Ethics committee approved the study to be conducted in the presented form at the meeting held at 09:00 AM on 12th October, 2021 at BHPI (30th IRB Meeting).

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,
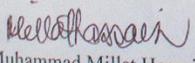
Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

CONSENT FORM

(Please read out to the participants)

Greetings, my name is Jannatul Hasan, I am conducting this study for a B.Sc in Physiotherapy project study titled "**Level of Depression and Anxiety among the Students of University of Dhaka and Jahangirnagar University during Covid-19 Pandemic**" under Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related information regarding depression and anxiety. You will answer some questions which are mentioned in this form. This will take approximately 5-10 minutes. I would like to inform you that this is a purely academic study and will not be used for any other purpose. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous and also all information will be destroyed after completion of the study. Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during interview.

Do you have any questions before I start?

So, may I have your consent to proceed with the interview or work?

1. Yes   2.No

Signature/Finger print of the Participant: Date:

Signature of the Researcher: Date:

Signature/Finger print of the witness: Date:

Appendix-3 (A)

Questionnaire Sheet

Research Title

Level of Depression and Anxiety among the Students of University of Dhaka and Jahangirnagar University during Covid-19 Pandemic

(N.B. - Put √ on your answer)

Part-1: Patient's Identification

1.1	Participant's name	
1.2	University	
1.3	Contact number	
1.4	Date of Interview	

Part-2: Socio-demographic and Anthropometric Information

2.1	Age	
2.2	Gender	1. Male 2. Female
2.3	Educational Status	1. Graduation 2. Post - graduate 3. Masters
2.4	Living Area	1. Rural

		2. Semi Urban
		3. Urban
2.5	Family member (Please write)	
2.6	Monthly Family Income (Please write)	…………………………………BDT
2.7	Do you exercise every day?	1. Yes 2. No
2.8	Do you follow your religious activities?	1. Yes 2. No

Part-3: Covid-19 related information

3.1	Did you diagnose COVID - 19 positive?	1. Yes 2. No
3.2	If Yes then, How long you were in isolation? (Please write)	…………Days
3.3	Had you been admitted to the hospital?	1. Yes 2. No
3.4	Do you have vaccination of COVID-19?	1. Yes, Completed 1 dose 2. Yes, completed 2 doses 3. No, I haven't vaccinated yet.
3.5	Did your family member diagnosed COVID - 19 positive?	1. Yes 2. No

Part-4: Center for Epidemiologic Studies Depression Scale (CESD)

(For each statement, please indicate how often you have felt this way in the past week or so by selecting the option you most agree with.)

4.1	How long was your appetite poor?	1. Not at all / Less than 1 day 2. 1-2 days 3. 3-4 days 4. 5-7 days 5. Nearly every day for 2 weeks.
4.2	Could you shake off the blues?	1. Not at all / Less than 1 day 2. 1-2 days 3. 3-4 days 4. 5-7 days 5. Nearly every day for 2 weeks.
4.3	Did you face any trouble to keep your mind on what you were doing?	1. Not at all / Less than 1 day 2. 1-2 days 3. 3-4 days 4. 5-7 days 5. Nearly every day for 2 weeks.
4.4	Did you feel depressed?	1. Not at all / Less than 1 day 2. 1-2 days 3. 3-4 days 4. 5-7 days 5. Nearly every day for 2 weeks.
4.5	Was your sleep restless?	1. Not at all / Less than 1 day 2. 1-2 days 3. 3-4 days 4. 5-7 days 5. Nearly every day for 2 weeks.
4.6	Did you feel sad?	1. Not at all / Less than 1 day 2. 1-2 days

		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.7	Couldn't you get going?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.8	Didn't anything make you happy?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.9	Did you feel like a bad person?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.10	Did you lose interest in your daily activities?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.11	Did you sleep much more than usual?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.12	Did you feel that you were moving too slowly?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days

		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.13	Did you feel fidgety?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.14	Did you wish to be dead?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.15	Did you want to hurt yourself?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.16	Did you feel tired all the time?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.17	Did you like yourself?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days
		5. Nearly every day for 2 weeks.
4.18	Did you lose a lot of weight without any trying?	1. Not at all / Less than 1 day
		2. 1-2 days
		3. 3-4 days
		4. 5-7 days

		5. Nearly every day for 2 weeks.
4.19	Did you have trouble getting any sleep?	1. Not at all / Less than 1 day 2. 1-2 days 3. 3-4 days 4. 5-7 days 5. Nearly every day for 2 weeks.
4.20	Could you be able to focus on the important things?	1. Not at all / Less than 1 day 2. 1-2 days 3. 3-4 days 4. 5-7 days 5. Nearly every day for 2 weeks.

Part-5: Generalized Anxiety Disorder Scale (GAD-7)

(Over the last 2 weeks, how often have you been bothered by any of the following problems.)

5.1	Feeling nervous, anxious or on edge?	1. Not at all 2. Several days 3. More than half the days 4. Nearly every day.
5.2	Not being able to stop or control worrying?	1. Not at all 2. Several days 3. More than half the days 4. Nearly every day.
5.3	Worrying too much about different things?	1. Not at all 2. Several days 3. More than half the days 4. Nearly every day.
5.4	Trouble relaxing?	1. Not at all 2. Several days

		3. More than half the days
		4. Nearly every day.
5.5	Being so restless that it is hard to sit still?	1. Not at all
		2. Several days
		3. More than half the days
		4. Nearly every day.
5.6	Becoming easily annoyed or irritable?	1. Not at all
		2. Several days
		3. More than half the days
		4. Nearly every day.
5.7	Feeling afraid as if something awful might happen?	1. Not at all
		2. Several days
		3. More than half the days
		4. Nearly every day.