Suicidal Ideation and Associated Factors Among COVID-19 Infected and Non-Infected People

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Submitted by

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APPROVAL OF THE THESIS

The thesis entitled **"Suicidal ideation and associated factors among COVID-19 infected and non-infected people"** has been submitted by **Shamanta Islam** to fulfil the requirement for the degree of M.Phil in Clinical Psychology is an original work. The research has been carried out under my guidance and close supervision. I have read the thesis and believe it will significantly impact on the field of Clinical Psychology.

Date

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Declaration

I now certify that this is an original work composed of original materials and has not previously been recognized as a degree or other credential by a college or other educational institution. I further declare that, unless otherwise mentioned in the thesis text, the thesis does not contain any previously published or written material to the best of my knowledge.

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Shamanta Islam

Abstract

Suicide is a serious global public health problem and the greatest cause of mortality for people aged 15 to 29 (WHO, 2019). Suicidal ideation is an idea or concept that can lead to suicide plans or attempts. Consequently, understanding the present occurrences of suicide, suicidal ideation, and suicidal behaviour disorder is becoming increasingly important in the context of the COVID pandemic. The novel coronavirus illness (COVID-19) is an infectious disease that developed in Wuhan, China, in 2019 and has caused over 522 million infections and over 6.2 million deaths (WHO, 2022). The World Health Organization (WHO) designated this contagious illness as a pandemic on March 11, 2020, naming it COVID-19. This illness had a significant and disruptive influence not just on worldwide health but also on socioeconomic standing, educational programs, and mental health. COVID-19 has resulted in an upsurge in suicide rates around the world due to its social, psychological, and economic effects.

Comparing COVID infected and COVID non-infected people have been selected for aiding this research so that the findings could contribute to the development of novel suicide prevention techniques. In addition, socio-demographic and psychological aspects and the association between socio-demographic and psychological components were investigated. To better understand the contemporary suicidal phenomenon, the relationship between the psychological components revealed by diagnostic instruments has also been examined. The research was conducted using a cross-sectional survey design employing the purposive and snowball sampling techniques to choose the sample population. A couple of research assistants have been tasked with recruiting 656 participants. Finally, 634 data have been entered into the SPSS software after the incomplete data have been reduced. Result showed that younger male COVID non-infected subjects had greater suicide thoughts than older female COVID infected participants. COVID-infected participants suffer from lower levels

of psychological well-being and higher level of depression than COVID non-infected participants. There is no difference in psychological distress between these two population categories.

The findings of binary logistic regression analysis showed that all predictors (participant Status, gender, age, educational qualification, socioeconomic status, marital status, type of residence, presence of co-morbid diseases, types of co-morbid diseases, well-being, and depression) were statistically significant ($\chi 2$ (5, N = 634) = 140.312, $p<.001$) indicating that the model can differentiate between respondents who reported and did not report suicidal ideation. After adjusting for all other characteristics in the model, respondents without COVID infection are 2.95 times more likely to have suicidal thoughts. When controlling for other variables, male respondents were 0.558 times less likely to have suicidal thoughts. After accounting for other factors, younger respondents were 0.405 times less likely to have suicidal thoughts. Considering other variables, those with co-morbid diseases were 0.344 times less likely to have suicidal thoughts. Poor well-being was positively associated with a 1.07 odds ratio for suicidal ideation after controlling other variables. After adjusting for all characteristics, depressed respondents were 1.078% more likely to have suicidal thoughts.

For COVID non-infected participants, there was a tangible link between well-being and suicidal ideation. For both the total number of participants and COVID infected participants, there was no strong association between well-being and suicidal ideation. For total COVID infected and COVID non-infected participants, psychological distress is substantially associated with suicidal ideation. Survivors of life-threatening illnesses during the pandemic may feel hopeful. Additionally, the infection may change psychological symptoms. Early pandemic survivors may be better prepared to handle mental health issues.

The outcomes of the study have prompted some novel ideas and perspectives. We can infer from this result that various socio-demographic factors impact suicidal ideation.

Key Words: suicidal ideation, COVID-19, psychological aspects

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Acknowledgement

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Dedication

To my mother, who always encourages me to face my fears and accept the way things are in the world.

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Chapter 1

Suicidal ideation and associated factors in COVID-19 pandemic

Introduction

Suicide has become a major public health concern around the world, particularly in the wake of the coronavirus pandemic. This is difficult to define the term suicide or suicidal ideation, which causes more complications in building suicide prevention programs by researchers and clinicians (Harmer, et al., 2022). We can conclude that suicidal ideation refers to the term of predisposition to killing oneself or any thoughts to try suicide or preoccupations with death (Bernert, et al., 2014). According to World Health Organization (WHO), suicidal ideation (or suicidal thoughts) means having thoughts, ideas, or ruminations that intend the possibility of ending one's life (WHO, 2019). Usually all individuals with suicidal thoughts do not attempt suicide; however, suicidal thoughts are considered a risk factor for suicide attempts (WHO, 2021). According to the American Psychiatric Association Practice Guidelines for the Psychiatric Evaluation of Adults (2016, p. 19), suicidal ideation is a symptom of another primary psychiatric diagnosis. Ninety percent of those who commit suicide match the diagnostic criteria for one or more psychiatric illnesses, according to the new standards (Silverman et al., 2015). Despite of diagnosis, suicidal ideation is a symptom of certain mental diseases, and it can also be a response to unfavorable circumstances in the absence of a mental disorder. Passive suicidal ideation is thinking about not wanting to live or visualizing being dead, but active suicidal thought is contemplating alternative methods to die or formulating a suicide plan (Kumar, 2017; Falcon, 2018).

According to WHO (2021), suicide is the fourth leading cause of mortality among 15 to 19-year-olds, accounting for over 700,000 deaths annually. Seventy seven percent of suicides worldwide occur in low- and middle-income nations (WHO, 2021).

As the number of suicides has increased dramatically, the researchers have chosen to examine suicidal ideation to comprehend this phenomenon in the context of COVID.

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Several key issues have been recognized to investigate this phenomenon, and the final research topic has been formulated after intensive brainstorming and literature review. Researchers sought answers to concerns such as why suicidal thoughts increased over time in this COVID-19 outbreak. Does any neurochemical characteristic play a role in developing suicidal thoughts in COVID-free individuals? Both COVID survivors and non-infected individuals suffer from suicidal thoughts and actions. Which factor is crucial to the development of suicidal ideation (SI)? Does a pandemic influence the development of suicidal ideation (SI)? To obtain the answer, we must comprehend the current events in this circumstance. These questions have been condensed into the title of the study: "Suicidal ideation and related variables among COVID-19-infected and uninfected individuals." Six hundred thirty-four participants were subjected to quantitative analysis in order to obtain the desired result.

1.1 Suicidal Ideation in DSM-5

Suicidal behavior disorder (SBD) was presented in DSM-5 as a disorder for further examination and possible adoption into the diagnostic system. Emerging temporal trends indicate that suicide rates are rising globally, and suicide preventative measures have proven difficult to establish. Probably because no single risk factor accurately predicts suicide. Recent papers have highlighted the significance of suicide risk assessment in enhancing suicide prevention. Suicide assessment could be improved by incorporating suicidal behavior more extensively into universal classification systems for mental diseases.

According to the DSM-5, five different criteria are presented for the disorder known as suicidal behavior. Along with the criterion, two specifiers have been cited in the discussion

1. The person had attempted at least a single suicide within the last two years.

2. The attempt did not occur during an altered mental state, such as delirium or disorientation.

3. The act was not driven by ideology, such as religion or politics.

4. The criterion for non-suicidal self-injurious behavior is not met during the above suicide attempts.

5. The diagnosis is not implemented to prepare for a suicide attempt or suicidal ideation.

Other specifiers are

Current- not more than 12- 24 months since the last attempt.

In Remission- more than 24 months since the last attempt. (American Psychiatric Association, 2013).

Onset

The DSM-5 states that Suicidal Behavior Disorder may occur at any age, although it is exceptionally unusual before age five (American Psychiatric Association, 2013).

1.2 Associating disorder with suicidal ideation

Personal, social, psychological, cultural, biological, and environmental factors combine to impact suicidal behavior; depression is the most common psychiatric condition among those who die by suicide (Cavanagh et al., 2003). In ninety percent of suicide instances, the underlying condition is major depression, cluster B personality disorders, schizophrenia, and substance use disorder. Other transitory characteristics that indicate an urgent danger of suicide crisis and necessitate rapid assistance include intolerable mental discomfort, sadness, and hopelessness (Gvion & Apter, 2012). The most prevalent contributor to the development of suicidal ideation is major depression. A person who

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suffers from depression has a twenty times increased risk of taking their own life when compared to someone who does not have the illness (Ferrari et al., 2014). Therefore, it is essential to have an awareness of depression and seek treatment for it. In order to understand and treat depression effectively, it is necessary to give considerable consideration to the issue of suicidal ideation.

As a result of high concentrations of psychiatric comorbidity, little is known about which conditions are uniquely connected with suicidal ideation (Nock et al., 2009). Numerous studies have proposed the following mental disorder associated with Suicidal Ideation (SI) and Suicidal Behavior Disorder (SBD). (Nock et al., 2009; Gvion & Apter, 2012)-

1. Anxiety

2. Mood disorder

3. Impulse-Control

4. Deliberate Self harm

5. Substances use

6. Post-traumatic stress disorder (PTSD)

7. Bipolar disorder

8. Agoraphobia

9. Conduct Disorder

10. Dysthymia

11. Obsessive-compulsive disorder

12. Cluster B personality disorders, and

13. Schizophrenia

1.2.1 Depression

Clinical depression is characterized by persistent emotions of melancholy and hopelessness, as well as a loss of interest in things that were previously enjoyed. Individuals

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who struggle with depressive mood may, in addition to experiencing emotional difficulties, also be plagued by a physical symptom, such as ongoing pain or digestive problems. The diagnostic features of depressive disorder are-

1.2.1.1 DSM-5 Diagnostic Criteria

The DSM-5 defines the following criteria for diagnosing depression. The individual must be experiencing five or more symptoms during a two-week period, with at least one of these being (1) sorrowful mood or (2) loss of interest or pleasure.

1. Depressed mood for the majority of the day, about every day.

2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.

3. Significant weight loss when not dieting or weight gain or decrease or increase in appetite nearly every day.

4. A slowing down of thought and a reduction of physical movement (observable by others, not merely subjective feelings of restlessness or being slowed down).

5. Fatigue or loss of energy nearly every day.

6. Feelings of worthlessness or excessive or inappropriate guilt nearly every day.

7. Diminished ability to think or concentrate, or indecisiveness, nearly every day.

8. Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

These symptoms must cause clinically substantial distress or impairment in social, occupational, or other relevant areas of functioning for a diagnosis of depression to be made. In addition, the symptoms cannot be due to substance abuse or another medical problem.

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1.2.1.2 ICD-10 Diagnostic Criteria

In regular depressive episodes of all three types mentioned below (mild, moderate, and severe), the individual typically experiences a depressed mood, a lack of interest and pleasure, and diminished energy, which leads to increased feelings of fatigue and decreased activity.

It is usual to feel fatigued after minimal exertion. Other frequent symptoms include:

1. Reduced concentration and attention.

2. Reduced self-esteem and self-confidence.

3. Ideas of guilt and unworthiness (even in a mild types of episode).

4. Pessimistic views of future.

5. Ideas of act of self-harm or suicide.

6. Deprived sleep

7. Diminished appetite

For the diagnosis of depressive episodes of all three severity levels (mild, moderate, severe), a length of at least two weeks is typically necessary; however, shorter durations may be acceptable if symptoms are especially severe and onset is rapid.

The most frequent instances of the "somatic" symptoms of depressive disorder are:

1. Loss of interest or pleasure in normally delightful activities.

2. Absence of emotional responsiveness to normally pleasurable surroundings and events.

3. Rising in the morning 2 hours or more before the regular time.

4. Depression that is worse in the morning.

5. Objective evidence of significant psychomotor retardation or agitation (seen or reported by others).

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6. Marked loss of appetite; weight loss (typically defined as 5 percent or more of initial body weight).

7. Marked loss of libido.

1.2.2 Deliberate Self harm

There is a strong connection between suicide and deliberate self-harm (DSH), which can vary from behaviors with no suicidal intent (but to communicate anguish or release tension) up to suicide itself (Muscat et al., 1996). The terms "attempted suicide" and "parasuicide" are generally avoided in favor of the word "deliberate self-injury." This is because the spectrum of motivations or reasons for this behavior encompasses several non-suicidal goals. Many people indicate that they had only thought about harming themselves for a few minutes before actually doing it, indicating that self-harm is typically a highly impulsive behavior. Consuming alcoholic beverages and illegal drugs almost certainly raise the risk of engaging in rash behavior.

1.3 Risk factors of suicidal ideation

Studies are continuously being done on the elements that increase one's likelihood of having suicidal thoughts. The impacts of suicide are disruptive on multiple levels, including psychosocial, socioeconomic, and economic. Age, level of education, the presence of cancer, and the presence of a mental disease were identified as risk factors for attempted suicide in men who had suicidal thoughts. According to several studies, stressful social events are one of the factors that contribute to the high suicide rate in developing countries. Suicidal behavior may be the result of a complex interplay of psychological and familial effects, family instability, relational troubles, marital conflict, divorce, and poverty, among other things. Many factors could significantly develop suicidal thoughts, including family and economic issues, academic failure, and love interactions between young people (Chien et al., 2015 & Veisani et al., 2017). Women

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poses suicidal ideation based on age, education, national basic livelihood security, daily

activity limitation, depressive disorder, stress, smoking, and regular exercise. Men

manifest suicidal ideation based on age, education, and regular exercise (Lee et al., 2010).

Concerns regarding the mental health of young people are at the forefront of efforts to

improve public mental health as a whole. Because of this, we need a solid understanding

of the risk factors that contribute to suicide conduct in young people (Bilsen, 2018).

Suicidal thoughts were found to be independently linked with being female, being

unmarried, being unemployed, having a poor or moderate income home, and having a

family history of suicide. Both suicidal ideation and attempted suicide were found to be

connected with younger ages and higher levels of alcohol intake (Dendup et al., 2020). We

can sum up with the following risk variables for suicide ideation, planning, and attempts

were found in the aforementioned studies.

1. Age,

2. Level of education,

3. Presence of cancer,

4. Presence of a mental disease

5. Stressful social events

6. Family instability

7. Relational difficulties,

8. Marital conflict,

9. Divorce, and

10. Poverty

11. Academic failure

12. Love interactions between young people

13. National basic livelihood security

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      14. Daily activity limitation,

      15. Depressive disorder,

      16. Stress,

      17. Smoking, and

      18. Lack of regular exercise

1.4 Warning signs of suicide

When it comes to health, warning signs have been extensively adopted by the general population as useful means of preventing a wide range of conditions. There are distinct distinctions between risk factors and warning signs, with risk factors of any health-related issues being distal and clinical warning signs being proximal. Population-dependent risk factors imply a permanent behavioral trend. In contrast, warning signs are individualized and indicate imminent danger (Rudd et al., 2003). When a person is having suicidal thoughts, they may sleep longer than usual and find it difficult to get out of bed at all. Individuals even might sleep less, which could lead to insomnia and staying up till all hours of the night, which would leave them struggling the following day due to exhaustion. Suicidal thoughts are at increased risk due to insomnia. Even after adjusting for depression and anxiety, sleeplessness significantly predicted suicide ideation in a longitudinal study of over 4,000 people (Wong et al., 2018). In a study of 103 people with depression, it was discovered that those who experienced more severe sleep problems also experienced more severe suicide ideation (Moul et al., 2015). Suicidal thoughts might cause someone to withdraw from life in general, other people, and the activities they usually engage in. Withdrawal significantly predicts suicidal ideation among depressed individuals (Kleiman et al., 2017). A study by Liu et al. (2020) found that detachment was positively associated with suicidal ideation in Chinese college students. The gathering of potentially lethal means might be another essential warning sign that can be concealed. It's

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possible that somebody will start hoarding medications without anyone noticing. Rudd et al., (2006) have identified some specific warning sign as follow-

1. Inquiring about one's desire to die or end one's life.

2. Trying to find a means to die.

3. Being depressed or lacking a purpose.

4. Expressing the idea of being imprisoned or experiencing extreme discomfort.

5. The idea of burdening others comes up a lot.

6. An increase in drink or drug consumption.

7. An increase in agitation, agitation, or recklessness.

8. A lack of or excessive amount of sleep.

9. Confined by one's own thoughts.

10. The expression of fury or desire of wrath.

11. Extreme mood swings and erratic behavior.

Jahan and Mozumder (2017) discovered certain warning signs for suicide through qualitative research in Bangladesh. These warning signs are segregated by domain. Three domains, cognitive sign, emotional sign, and behavioral sign have been discovered. These domains have been grouped according to eleven distinct themes. The cognitive domain consists of a negative self-image, a negative life view, and an embrace of suicide. The emotional domain encompasses symptoms of depression, anxiety, and emotional explosion. Behavioral signs include coping with stress, preparation for suicide, self-defeating behavior, impaired functionality, and expressed aggression.

There have been discovered various subcategories of these warning signs. The negative self-view consists of a perceived valuelessness and a perceived alienation. A negative life view is characterized by worry about uncertainty and the meaninglessness of life. Embracing suicide has been characterized as being alive is more painful and

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perceiving death as a solution. Low mood, feelings of frustration, isolation, and loss of interest have been identified as depressive symptoms. Symptoms of anxiety include irritation, restlessness, and tension. The emotional explosion is characterized by feeling on the edge, rumination, desperation, impulsivity, lack of control, and suicidal decreolization. Several subcategories have been proposed to identify the behavioral sign of suicide warnings. Unusual behavior, addiction as a coping, and emotion-focused coping have been categorized as coping with distress. Preparation for suicide comprises preparation for suicide attempts, apologizing to Allah and asking for giving up claim. Self-defeating behavior is classified as self-harm and self-negligence. Interruption of everyday activities, impaired engagement in usual work, and withdrawal behavior have all been included as indicators of impaired functionality. The categories of expressed aggression are anger outbursts, physical violence, and revengeful attitude.

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Figure1.1

Warning signs of suicide according to Jahan and Mozumder (2017)
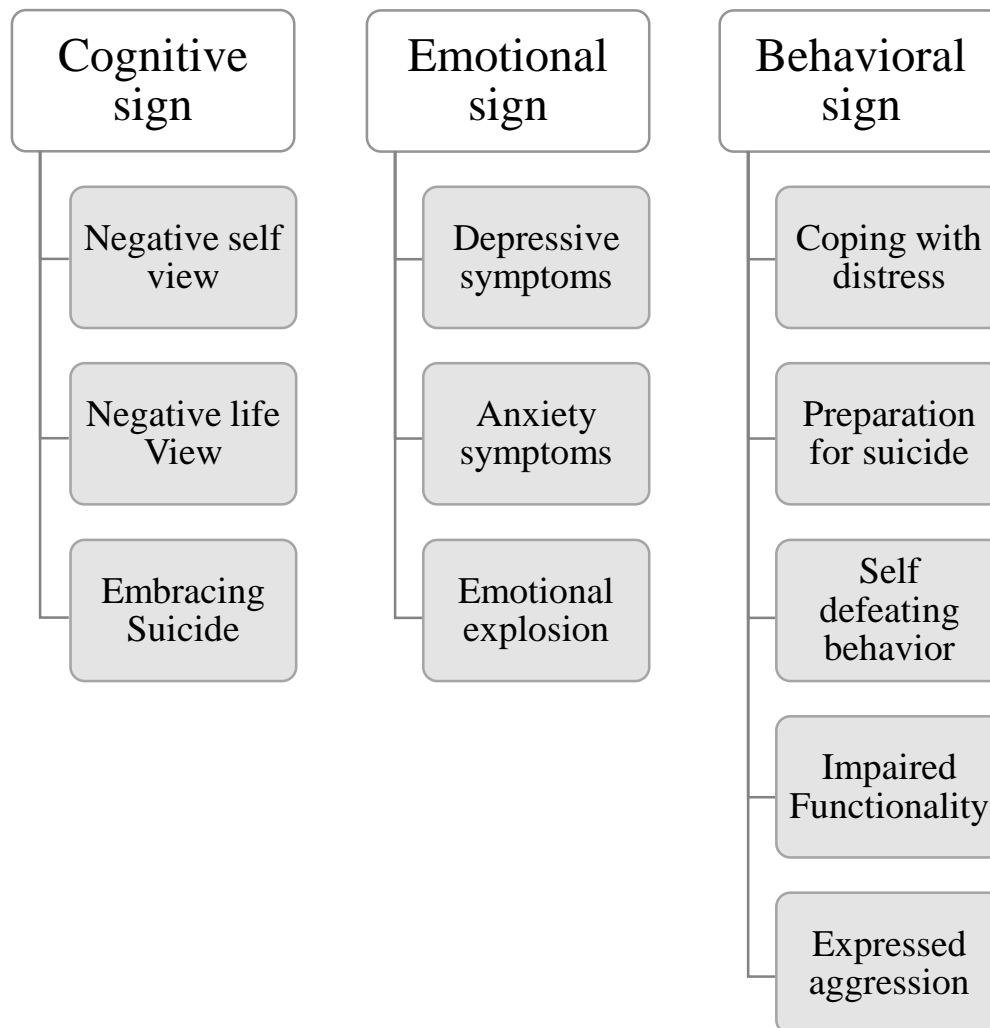
Note: There are three warning signs of suicide: cognitive, emotional, and behavioral.

Cognitive signs include negative self-perception, a pessimistic outlook on life, and suicide

acceptance. Depressive, anxiety and emotional symptoms are examples of emotional

signs. Behavioral signs include self-destructive behavior, suicidal ideation, coping with

distress, impaired functionality, and aggression.

1.5 Global Statistics of Suicidal incidents

The statistical outcome of suicidal thinking, planning, and attempt varies widely

across different studies, one of which, conducted by the International Association for

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Suicide Prevention (IASP), revealed some valid data on this statistics. Globally, an estimated 703 000 persons die by suicide each year; more than one out of every 100 deaths (1.3%) in 2019 were caused by suicide. Although some prior statistics indicated that women are more prone to suicidal ideation, the IASP discovered that the global suicide rate among men is more than twice as high as among women. More over half (58%) of all suicide deaths occur before the age of 50. The World Health Organization (WHO) came to the conclusion that an earlier attempt at suicide is the most significant risk factor for a subsequent suicide death. However, almost three quarters (77 %) of global suicides in 2019 happened in low- and middle-income nations. Suicide is the world's fourth leading cause of death among those aged 15 to 29. Suicide occurs all throughout the world. While the majority of suicide deaths occur in low- and middle-income countries, high-income countries have a higher age-standardized suicide rate (10.9 per 100,000). Nearly 20% of all suicides are caused by the absorption of pesticides, mainly in rural agro - ecosystems. Additionally, hanging and weapons are typical means of suicide. There is a significant risk of suicide among those who are part of vulnerable groups who are susceptible to prejudice. These vulnerable groups include refugees, migrants, prisoners, indigenous people, and members of the LGBTI community. People who engage in suicidal behavior may be punished in some countries that follow Sharia law. Penalties might be as mild as a modest fine or a few months in jail, or as severe as life in prison. In almost 20 nations, taking one's own life is still against the law (Mishara & Weisstub, 2016).

60% of the world's suicides are estimated to occur in Asia, where 60 million individuals are affected by suicide annually (Chen et al., 2012). More than one third (39%) of all suicides that take place across the world take place in south Asia (Vijayakumar et al., 2020). Rather than mental conditions, risk factors such as aggravated access to lethal means and acute life stress are closely associated with suicide occurrences in Asia.

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Australia, Japan, New Zealand, Pakistan, Thailand, China, Hong Kong SAR, Singapore, India, and the Republic of Korea have the highest rates of suicide by hanging, jumping, and poisoning, while China, India, and the Republic of Korea have the highest rates of suicide by jumping (Yip, 1996; Ung, 2003; Shin et al., 2004 & Bose et al., 2006). Studies conducted in Taiwan and Pakistan found the most significant mental problems among suicide victims, 97% and 96%, respectively. China (45 % to 76 %) and India (33.6 % to 88%) have the lowest rates. Older women are more suicidal than younger people and men. At the global level, suicides are responsible for 50% of all deaths caused by violent acts in men and 71 % of such deaths in women (Jordans et al., 2014). This issue is understated due to incorrect estimation and late reporting of suicide deaths. Insufficient suicide statistics exist in south Asian nations such as India, revealing an imperfect depiction of the continent. Social sigma is crucial to help-seeking behaviour for suicide prevention (Lee et al., 2006). Different epidemiological trends, risk factors, and protective factors in Asian countries will result in a rise in the suicide rate during the next two decades. A contrasting perspective has been shown in south Asian countries in the year 2020, where the male–female ratio for suicide is closer, and both older individuals and adolescents show the highest rates of suicide. In these countries, the average age of a person who commits suicide is higher (Vijayakumar et al., 2020).

1.6 Suicides in Bangladesh

Bangladesh, a densely populated developing country in Southeast Asia, has met the Millennium Development Goals (MDG) for health, but suicide is still a significant issue. Furthermore, research and literature are scarce on this enormous community's suicide. A review based on previously published studies has offered a narrative perspective of the current condition of suicide in Bangladesh (Ferdous & Alam, 2021). According to the analysis findings, Bangladesh has a suicide death rate of 39.6 per 100,000 people. Hanging

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is the most typical technique, followed by committing suicide via poisoning and jumping in front of a train. The majority of people are under the age of 40. The number of children who take their own lives is likewise on the rise. In contrast to the majority of Asian countries, a greater number of women than males in Bangladesh commit suicide. The act of suicide took place primarily throughout the night, followed by the morning (6 am–12 am), and then the evening. The most recent statistics from the WHO indicate that 5,998 people took their own lives in Bangladesh in 2020. This number accounts for 0.84% of all deaths globally. People areas have an age-adjusted death rate of 3.85 per 100,000. According to a survey published in The Lancet and reported on by BBC News, the likelihood of suicidal thoughts among Bangladeshi women is higher due to their lower socioeconomic status (Shah et al., 2017). Another issue is a more significant incidence of illiteracy and their economic reliance on men. Furthermore, committing suicide is a criminal offence, and there is a range of conditions, such as religious considerations, societal reasons, and legal sanctions, that hinder suicide disclosures (Arafat, 2017).

Jhenaidah is a district in the southeast of Bangladesh that is well-known for the elevated rate of suicide that can be found here. According to the civil surgeon's office and the police superintendent, the suicide rate in the Jhenaidah area is 22 out of every 100,000 people. This information was presented in a story published by The Daily Star (2019, September 27). WHO also claimed that 28 people take their own lives across the country every day, whereas Jhenaidah alone marks an average of the death each day. Between the year of 2014 and 2018, a total of 1,820 persons in Jhenaidah committed suicide, as indicated by the statistics compiled by the local authorities. More women than males end their lives by taking their own lives and 79.5% of them are housewives. It is estimated that residents of Jhenaidah have a life expectancy of 69 years on average. People between 11 and 30 years old were most likely to kill themselves.

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1.7 COVID-19 Pandemic

The novel coronavirus disease (COVID-19) is an infectious disease that originated in Wuhan, China, in 2019, causing the COVID-19 outbreak to threaten the global socioeconomic system which is caused by the SARS-CoV-2 virus. The virus causes mild to moderate respiratory disease in most people who contract it. According to WHO, severe sickness is more likely to strike the elderly and those with underlying medical disorders such as cardiovascular disease, diabetes, chronic respiratory disease, or cancer. In addition to these symptoms, you could also have a fever, a dry cough, vomiting, diarrhoea, nausea, and weariness, all of which could lead to more severe complications such as difficulty breathing, speaking, moving, and having chest pain (Chen et al., 2020; Ali et al., 2020).

COVID-19 can make anyone sick and cause severe illness or death at any age. More than 52.1 million parsons have been infected and more than 6.2 million have died as a result of this pandemic as of now (WHO, 2022). The COVID-19 breakout has resulted in enormous worldwide disruptions (for example, social, economic, and health) in a variety of fields, which has a negative impact on sustainable development. The rising unpredictability of pandemic has radically impacted the way people live (i.e., their quality of life), which has a significant impact on the socioeconomic sustainability of global economies. According to a reviewed picture on socioeconomic implications in pandemic, social alienation, self-isolation, and travel restrictions have led to a workforce decline across all economic sectors and the loss of many employment. Additionally, the closure of schools will diminish the market for commodities and manufactured items. The food business is also seeing increased demand owing to panic buying and food stockpiling. Numerous negative effects on household income, employment, and health have been borne by the global economy in this pandemic, which has a direct impact on people's well-being. According to a study conducted by Vafaei et al. in 2020, the rapid speed of work

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magnifies the effects of stress, anxiety, and burnout among health care employees. An analysis by Bilgili et al. found that the pandemic's fatal spread was most devastating to people 65 and older. The devastating effects on people's health, socioeconomic conditions, and educational opportunities have all been brought up.

1.7.1 Global impact on health of COVID-19 pandemic

At the end of 2019, the COVID-19 pandemic, which is being called the one of the worst global health crises in the history of humanity, officially began. WHO estimated that around 180 000 health care workers could have died from COVID-19 between January 2020 and May 2021, with a median of 115 500 deaths. The main medical symptoms appeared during pandemic are fever, breathlessness, cough, expectorate, sore throat, anosmia, dyspepsia, nasal congestion, eye irritation, exhaustion, muscle pain, diarrhea and distressed (Magnavita et al., 2020). Every health system was required to bear the COVID-19 burden and assume responsibility for its prevention and treatment. As the pandemic approached its third year, the health and well-being of health workers continues to be a major issue among a variety of stakeholders. More worrisome is the unmeasured number of increased deaths attributed to COVID-19 among health workers who continue to experience rising demand, exhaustion, stress, and burnout effects. According to a Lancet article, healthcare workers are among those at increased risk for contracting this virus. In China, 3,387 health professionals were infected, and 22 health professionals (0.6 percent) died as a result. Likewise, Italy (20%), Spain (14%) and France (nearly fifty deaths among health professionals) reported significant health professionals. infection rates (The Lancet, 2020). The symptoms of COVID-19 can range from mild to severe; of those who catch COVID-19, about 14% develop significant illness that necessitates medical attention or hospitalization; approximately 6% who contract COVID-19 suffer fatal complications, such as septic shock or cardiac arrest (WHO, 2020a; WHO,2020b). According to the

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findings of a number of studies, medical professionals shoulder an additional significant burden in the form of frequent reporting of staff worries around the possibility of placing a member of their own family at risk of infection (Chen et al., 2020; Wu et al., 2020). In addition to the medical issues, those working in healthcare during the pandemic suffered certain physical symptoms associated with their mental health as a result of their profession. Insomnia, fatigue, sore throat, and headaches were cited as the top four most prevalent symptoms among those who participated in quantitative studies (Chew et al., 2020).

Healthcare professionals, particularly paramedical personnel, had the greatest stress levels. Across all occupational groups, women exhibited significantly greater work-related stress levels than men (Couarraze et al., 2021). The characteristics of stress resulting from a pandemic in a setting of this magnitude are novel and may include future-related concerns. Some implications of this pandemic, such as isolation due to lockdowns and the fear of spreading, can produce chronic stress in humans (Massimo & Angella, 2020).Workplace stress can be exacerbated by socio-demographic factors such as gender or age, which might be a contributing factor. In the nursing profession, women are more stressed than men. It would appear that older workers are less likely to contract the pandemic virus than their younger counterparts. And older individuals have developed specialized coping mechanisms that protect them from high stress levels.

1.7.2 Impact on health of COVID-19 pandemic in Bangladesh

Bangladesh is one of the world's most densely populated nations (1,115 people/km2), with 21.8 % living below the poverty line and a healthcare system lacking in dependability, responsiveness, and compassion (Chowdhury et al., 2020). The COVID outbreak struck the nation with great force, which resulted in significant upheaval within the health care system of Bangladesh. Bangladesh was at the fourth stage of COVID-19

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transmission as of June, 2020, indicating that the population is in the zone of huge

community transmission, and as of August 9, 2020, 73 doctors, including some top

specialists, had died of COVID-19. The Bangladesh Medical Association (BMA) claimed

that in the earliest stages of this pandemic in Bangladesh, around 10 percent of all

infections were discovered among health care personnel (Hossain, 2020). 15.7 % of

infected people have severe illnesses requiring hospitalization, oxygen-masks, and

ventilators, while 5% require the ICU (Reza et al., 2020). In most hospitals during the

pandemic, doctors are ignoring a huge percentage of non-COVID-19 patients who need

emergency care. Many cancer, heart, and kidney patients need emergency hospital care to

survive. Lack of awareness, fear, and medical-grade personal protection equipment (PPE)

have caused widespread panic. COVID-19 patients were served by 14 hospitals (COVID-

19 hospitals and normal hospitals) in Dhaka and 10 outside the city. COVID-19 hospitals

lacked a central oxygen supply and enough ventilators. ICUs were not suited to care for

comorbid patients, and there were not enough beds. Few hospitals admit COVID-19 and

non-COVID patients. A local firm was trying to produce ventilators to accommodate the

expected rise in patients. Private hospitals and clinics also lacked viral testing kits, skilled

medical workers, and PPE, so a single coronavirus infection put everyone at danger and

caused fear and disorder. The national committee for COVID-19 management didn't

include private hospitals and clinics, therefore their isolation units, oxygenation systems,

frontline treatment teams, and separate ICUs were not ready. Therefore, three main causes

of the country's poor health care have been identified by Sayeed Al-Zaman (2020).

    1) Ineffective health care communication,

    2) Poor administration, and

    3) Insufficient health facilities

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Hosen et al. (2021) have quantified several preventive behaviors in Bangladesh based on geographical variables. Individuals who were male, divorced, or widowed, drank alcohol, smoked cigarettes, resided in rural locations, and had a formal education displayed less effective COVID-19 preventive behaviors.

1.7.3 Global impact on socio-economic condition of COVID-19 pandemic

The rapid spread of COVID-19 has been detrimental to global business, commerce, and the economy. COVID-19 was first a health concern, but it is now a global economic issue. COVID-19 is a major concern for the world's most vulnerable and underserved communities, despite improvements in hospitalization and mortality rates in several nations and areas. Due to our planet's increasing interdependence and globalization, we have entered an era of unprecedented economic shrinkage. Infectious illness epidemics have typically had ripple effects throughout the economy. A mixed-methods study conducted in India indicated that the loss of job and household income has economic consequences and that restrictions preventing workers from returning to work may generate additional stress and ill health impacts. The pandemic has adverse consequences on household finances, individual livelihoods, interpersonal connections, coping abilities, nutritional intake, and other elements in addition to health (Singh and et al., 2020).

Due to the region's substantial population and high poverty rates, poor socio-economic conditions, deplorable health infrastructures, inadequate social protection systems, and inadequate living space arrangements, COVID-19 has presented South Asian economies with unique challenges (Rasul et al., 2021; Hossain, et al., 2020). The simulation results of a study undertaken by a few experts in India suggest that a month-long economic shutdown may result in a 1.5 percent to 2.0 percent yearly decline in GDP (Khajanchi and Sarkar, 2020; Samui et al., 2020; Khajanchi et al., 2020).The economies of South Asia are set to contract for the first time in four decades (IMF, 2020). Due to high

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levels of globalization, economic integration, and interdependence between the various

economic sectors, a change in any section of the economy or any country today affects

other economic sectors in other parts of the world. As with climate change, pandemics are

now global threats due to their rapid worldwide spread, regardless of where they begin

(Acharya and Porwal, 2020; Ibn-Mohammed et al., 2020). The following areas have been

disrupted by the hit of COVID-19 pandemic in terms of socio-economic condition.

1.7.3.1 Impact on Migration and Remittances

Tourism, sports, entertainment (film), education, transportation, manufacturing,

migration, and remittances are the sectors most impacted by restrictions on travel,

movement, and gatherings. South Asian nations rely heavily on offshore remittances as a

primary source of foreign exchange profits and household income. With the closure of

remittance transfer enterprises, the loss of employment overseas, and the absence of travel

back home, it is anticipated that remittance inflow in South Asia will decrease

dramatically. In India, Pakistan, and Bangladesh, the flow of remittances has decreased by

around 23% compared to 2019 (Rasul et al., 2021). Expected to decline by 14 percent in

Nepal. The coronavirus-related global economic downturn, declining oil prices, and travel

restrictions may also have an impact on the demand for migrant labor and migratory

movements, which is anticipated to keep remittances modest through 2021.

1.7.3.2 Socio-Cultural Impacts

Job loss and layoffs can lead to suicidal thoughts and behaviors and alcoholism and

drug misuse in some individuals (Hossain et al., 2020). Orphanages, shelter homes, mental

health facilities, and jails are all places where the general public has restricted access to

information about their living conditions, and the rate of domestic violence against women

has risen considerably under lockdown (ICIMOD, 2020).

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1.7.3.3 Effects of Unemployment

The informal sector, which includes banking, local businesses, non-governmental organizations, and private employment, has been struck particularly severely by COVID-19 around the world. Both the wage laborers and the informal businesses are up against formidable obstacles. As a result of the lockout, many micro, small, and medium-sized businesses (MSMEs) have shut down. As a result, a substantial number of people employed in the unorganized sector have lost their jobs. Economic losses accumulated due to reduced demand, restriction of movement, lack of access to markets, and the loss of mobility of both people and goods have all affected workers (ILO, 2020).

1.7.3.4 Slowing GDP expansion

Due to COVID-19, several projections indicate that South Asian nations will endure the poorest economic performance in the past four decades. The amount of the economic impact will depend on the duration and severity of the health crisis, the length of the lockdown, and how the situation develops once the lockdown is removed. According to the International Monetary Fund's projections, the 2020 GDP growth rate for South Asian nations is anticipated to vary between -18% (Maldives) and 3.8% (Bangladesh). While population is increasing and inflation has risen, the fall in GDP will lead to a further decline in per capita income, which will have a negative impact on the lives of the general public.

1.7.4 Socio economic impact of COVID-19 pandemic in Bangladesh

It was inevitable in COVID-19 pandemic that a humanitarian and socioeconomic catastrophe would erupt in a developing nation like Bangladesh, resulting in several deficiencies that are likely to produce the worst outcomes. Around 68% of people lost their jobs as a result of the COVID-19 outbreak, according to a World Bank assessment.

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According to Shadat (2020), the influence of COVID-19 on the Bangladeshi economy has been transmitted through two primary channels:

1. Depressed domestic demand and supply disruptions in the local economy.

2. A slowdown in a global economic activity affecting international commerce and financial flows.

This policy brief outlines the key conclusions of a study conducted by the BRAC Institute of Governance and Development (BIGD) using the GTAP model. A study indicated that incomes decreased by 29% due to Covid-19 and by 34 % in the Dhaka Metropolitan Area (Ali and Nazrul, 2020). The lockdown had a significant impact on people who earn daily money as well as those with low and intermediate salaries who lost their employment and sources of income.

Any preventive measures, such as a border closure, could obstruct the regular flow of raw materials, commodities and services, capital, and people, causing business and manufacturing to shut down. Taking into account the population density, educational status, social structure, cultural norms, and healthcare capacity, the Bangladeshi government has frequently adopted erroneous policies, resulting in serious socioeconomic disruptions on a worldwide scale.

Infectious illness outbreaks have predicted harmful implications for both individuals and society (Doza et al., 2020). Covid-19 has wreaked havoc on society, particularly in Bangladesh. The government in Bangladesh discourages religious mass gatherings. The majority of Bangladeshis are Muslims, and rural religious leaders protested the government's announcement, prompting thousands to congregate in mosques to pray for the virus's recovery.

After the ready-made-garment (RMG) manufacturers trade group BGMEA agreed to reopen operations prior to the end of the lockdown, the dilemma of life vs livelihood

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posed a significant risk of community transmission in industrial districts. Emergency

responders, such as medical professionals and healthcare staff, police, security forces, and

military personnel, are at danger of infection due to poor administration and policy.

Thousands of doctors and police officers have already been infected and perished during

this time period. The socioeconomic repercussions of this epidemic are already substantial,

especially for disadvantaged poor groups, day laborers, wage earners, RMG-sector

workers, and small and medium business startups. Already, the country's RMG industry

has lost a significant number of global orders due to the pandemic, and remittances are at

an all-time low.

The coronavirus pandemic has a negative impact on the three most important

sectors of Bangladesh's economy: agriculture, industry, and services, which contributed

18%, 29%, and 53%, respectively, to the country's gross domestic product. Cox's Bazar

has the world's largest refugee camps. Rohingya refugees from Myanmar live in Cox's

Bazar. Twenty-one confirmed cases in camps, 435 in the district. This depicts public

concern that the government and allies must address with facts.

1.7.5 Global Impact on Education of COVID-19 Pandemic

The COVID-19 pandemic has wreaked havoc on education systems around the

world, affecting approximately 1.6 billion students in over 200 nations. Over 94% of the

world's student population has been exposed to a school, institution, or other educational

facility. (Pokhrel & Chhetri, 2021). For over a year, numerous educational

institutions worldwide have postponed or cancelled all campus activities to prevent

overcrowding and thereby spread the virus (Mahdy, 2020). University students' education,

including university studies and internships, was interrupted during the COVID-19

outbreak, implying long hours at home and perhaps leading to disrupted life rhythms and

irregular sleep patterns. UNESCO reported that since the beginning of the COVID-19

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epidemic in early 2020, the education of over 800 million children across Asia, including

South Asia, Southeast Asia, and East Asia, has been affected owing to school closures.

The pandemic has also elevated the danger of illness and mortality associated with

traumatic occurrences that had psychological repercussions for the global student

population. The COVID-19 pandemic has given us the opportunity to lay the groundwork

for digital learning. Online teaching has replaced face-to-face instruction in several

universities. In this scenario, students and teachers experienced new issues. However,

learning loss was especially noticeable among students from low-income families.

According to a survey of school-aged students in the Netherlands, losses are up to 60%

higher among students from lower-income families, confirming concerns about the

pandemic's uneven impact on children and families (Pokhrel & Chhetri, 2021).In areas

where the pandemic poses a higher risk to health and mortality, there is also an increase in

the emotional toll it takes. During lockdown, children spend significantly less time

studying, according to the study (Engzell et al., 2021).The vulnerable students were put at

greater risk because of family violence (Golberstein, 2019; Brooks, 2020).

1.7.6 Impact on Education of COVID-19 Pandemic in Bangladesh

All schools in Bangladesh have been shuttered since the beginning of the

pandemic, affecting 37 million students (UNICEF, 2021). The long-term implications of

such frequent school closures include learning loss, mental discomfort, missing school

meals and vaccines, higher chance of dropping out of structured education, and increased

child labour and early marriage. Various institution in the world has adopted online

instruction in lieu of face-to-face instruction. In this instance, both teachers and students

began to meet challenges they had never encountered before. Existing and future

generations of children are already bearing the brunt of many of these devastating impacts.

Normally, the school administration gives free or subsidized meals to students, but this is

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no longer possible during the coronavirus outbreak. The situation could result in pupils

dropping out of school, which could pose a major long-term threat to any nation. In

addition to the possibility of students dropping out of school, income disparity has a

significant impact on the online learning environment as well. Electronic learning isn't

accessible to students who can't afford high-speed internet or other high-tech equipment

(Murphy, 2020).

A poll of 409 Bangladeshi students indicated that 13.7% of respondents cannot

concentrate on their schoolwork. More than half of the participants (54 %) had spent more

time than before on social media. According to our findings, the inability of students to

concentrate on their studies, their increased use of social media and technological

communications, altered sleep hours during the pandemic, increased time spent on

personal care, and changes in their plans are all related to their mental health (Piya et al.,

2022). Another survey revealed that 79%, 83%, and 72% experienced financial crises,

family upheaval, and internet and technology-related issues, respectively (Hosen et al.,

2022).

1.7.7 Global Impact on Mental Health in COVID-19 Pandemic

Massive epidemic and pandemic outbreaks have numerous harmful effects on the

mental health of individuals (Duhan & Zhu, 2020). The direct effects of the current

COVID-19 pandemic and government policy responses on mental health have been

highlighted (Nabila Ashraf et al., 2021). COVID-19 may affect the mental health of many

people in numerous ways. During the COVID-19 pandemic, family and friends of

COVID-19 patients, their close contacts, the isolated or suspected population, healthcare

providers, and the general community endure an increased mental health burden (Xang et

al., 2019). Even with the implementation of vaccination programs, the primary public

health measures for preventing transmission of the SARSCov-2 virus responsible for the

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COVID-19 pandemic involve isolation; the very thing that may lead to loneliness, anxiety, depression, anger, or fear and may trigger new mental health problems (Ali et al., 2020; Sakib, 2021).

According to Das and his colleagues (2021), the prevalence of loneliness, sadness, anxiety, and sleep disturbance is 71%, 38 %, 64 %, and 73% respectively. COVID-19 made people feel terrified, anxious, or powerless, with over 40% reporting greater stress from job and money concerns (Dhaheri et al., 2021). About 10% of sample participants exhibited a clinically significant increase in psychopathological symptoms, and 15% matched the criteria for COVID-19-related traumatic distress, according to a second clinical investigation (Schafer et al., 2020). An additional study on mental health during this epidemic indicated that many experienced anxiety and depression symptoms. Initial research suggests that women, younger individuals, and those with poor sleep quality are at increased risk for mental health issues (Rajkumar, 2020; Vindegaard & Benros, 2020; Liu et al., 2020; Wang et al., 2020; Huang & Zhao, 2020).

Because of widespread social media exposure and improved worldwide connectedness, the psychological impact is thought to be greater than that of the 2003 Severe Acute Respiratory Syndrome (SARS) epidemic. SARS-related psychological issues have been reported to be common, particularly among healthcare personnel and SARS survivors. It was found in Saudi Arabia in 2012 that the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) was detected. The MERS-CoV outbreak caused widespread public worry in the afflicted nations, resulting in thousands of deaths, fear, anxiety, and psychosocial stress among the populace, as well as economic losses. According to the literature, many stressors such as prolonged quarantine, fear of infection, discomfort, loneliness, boredom, confinement, insufficient information, and financial loss all contribute to poor mental health (Serafini et al., 2020). Evidence from previous

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pandemics suggests that the frequency and content of reporting can have a major impact on individuals' health-related attitudes and behaviors.

From December 2020 to December 2021, a poll reveals that 22.8% are stressed, 24.9% are suicidal, and 38.3% are domestically violent. (Nabila Ashraf et al., 2021) A team of American researchers stated that health care providers were worried by the lack of personal protective equipment (PPE) and the fear that their family members may become infected with Coronavirus while they were serving their country. In Bangladesh, the media has reported on pregnant health care workers who are concerned about the effects of COVID-19 on their own unborn children. During the lockdown, according to the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), domestic violence against women and children has intensified. In France, for example, the lockout led to a 30 percent increase in domestic violence. Due to funding constraints, studies conducted in Bangladesh that demonstrated psychosocial abuse and violence were covered in the news. During any pandemic, the media has the capacity to eradicate stigma and boost awareness (WHO, 2020).

Therefore, understanding the effect of the COVID-19 pandemic on an individual's mental health could lessen a number of existing and future mental health problems. There is a need to improve media platforms' understanding of psychological issues during pandemics and to emphasize the need of getting assistance and engaging in physical exercise for the treatment of mental health disorders. In addition, a greater knowledge among health care professionals regarding the identification and targeting of high-risk sections of the population at risk for developing mental health disorders is crucial.

1.7.7.1 Global Scenarios of Suicidal Ideation in COVID-19 Pandemic

The public health consequences of direct and indirect COVID-19 pandemic implications on suicide and self-harm are severe. Suicide is likely to rise as a result of the

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COVID-19 pandemic's expected mental health catastrophe. Suicide rates are expected to rise as a result of the social, psychological, and economic repercussions of COVID-19. COVID-19's impacts on mental health are dissimilar from those of previous pandemics, with anxiety, depression, and stress prominent in the general population, according to new research (Kumar and Nayar, 2020). Several data revealed that the number of suicides rises following pandemics (Chan et al., 2006; Cheung et al., 2008; Honigsbaum, 2010; Wasserman, 1992; Yip et al., 2010). As soon as Japan declared a state of emergency, the suicide rate dropped precipitously (Sueki & Ueda, 2021). According to a paper based on a meta-analysis of 19 studies on the prevalence of suicidal ideation, 12 publications offered relevant data. 12.1 % in two trials had suicidal ideation, while 7.3 % in another study had suicidal ideation (Farooq et al., 2021). Caballero-Domnguez et al. (2020) evaluated the relationship between COVID-19-related perceived stress and suicide risk where they found that 7.6% of research participants indicated a high suicide risk.

During the COVID-19 pandemic, main risk factors for having suicidal thoughts have been found through different studies. In Japan, school closure triggered suicidal thoughts, whereas unemployment exacerbated suicidal ideation in Canada. Farooq et al., (2021) suggested that low social support, high physical and mental exhaustion, and poorer self-reported physical health in frontline medical workers, sleep disturbances, quarantine and exhaustion, loneliness, and mental health problems highly associated with suicidal thoughts and behavior. Vicarious traumatization, which happens when individuals care for people who are dying, is another important cause of suicidal thoughts (Sahimi et al., 2021). Studies (Amit et al., 2020) have shown that social support is linked to suicidal thoughts, anxiety, and depressive symptoms, and that having a lot of social support can make suicidal thoughts go away (Bi et al., 2020). Physical separation, personal COVID-19 exposure, and quarantine can make people feel lonely, which is a risk factor for suicide in

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people of all ages (Daniel & Goldston, 2012; McClelland et al., 2020). A cross-sectional survey (Czeisler et al., 2020) found that caring for adults, not being married, being younger, and not having children were all linked to a higher risk of suicidal thoughts. Ahorsu et al. (2020) did an online cross-sectional survey and found that pregnant women and their husbands who were afraid of COVID-19 were more likely to have suicidal thoughts. In many countries, it's hard to tell if suicidal people are younger or older. But there were signs that suicide rates and mental health problems were getting worse among young people, which makes sense since there is a known link between suicidality and hard times. Li et al. (2020) found that suicidal thoughts were linked to less hand washing, less perceived social support, less COVID-19-specified support, worse self-reported physical health, and being younger. Xin et al. (2020) found that being in mandatory quarantine was linked to thoughts of self-harm or suicide in a moderate or strong way. Caballero-Domnguez et al. (2020) looked at the link between COVID-19-related perceived stress and suicide risk. They found that 7.6% of the people who took part in the study showed a high risk of suicide.

1.7.8 Impact on Mental Health of COVID-19 Pandemic in Bangladesh

Bangladesh has a population of approximately 164 million people, making it a highly populated country. The population density is five times that of any other state. Female sex, unemployment, being a student, obesity, and living without a family were the top characteristics related with poor mental health in Bangladesh during COVID-19.

Children are not immune to this pandemic and are the most susceptible to its devastating consequences since they are forced to stay home for extended periods owing to lockdown and school closure. This preventive action resulted from a diminished possibility for exploration and physical activities and minimal connection with classmates (Jiao et al., 2020). All of these have a significant impact on children's mental health and

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well-being, resulting in various mental health issues such as anxiety, stress, depression, and sleeping disorders (Dunleavy, 2020, Galvin, 2020, Ramchandani, 2020, Rawstrone, 2020). The long-term implications of the COVID-19 epidemic on children's mental health have not been studied in Bangladesh. Sabina and her colleagues (2020) determined that during the pandemic 43% of youngsters suffer from depression. 43% had sub-threshold disturbances, followed by 30.5% with mild disturbances, 19.3% with moderate disturbances, and 7.2% with severe disturbances. The education level of the child's parents, where they live, if any of their relatives or neighbors have Covid-19, if they still need to go to work, if they smoke, if they have a chance of losing their jobs, if the child acts, if the child fights, if the child is busy with other things, if the child acts, if the child complains about how busy their parents are, if the parent acts strangely toward the child (like calling the child stupid, play role to specify the mental health condition of the children .Children who live with their parents in cities are more likely to have mental health problems than children who live with their parents in rural areas. Maybe this happened because the lockdown was carried out perfectly in cities, where children had to stay home anyway. Compared to children in rural areas, they have more health problems. Maybe this happened because the lockdown was carried out perfectly in cities, where children had to stay home anyway.

Globally, individuals' mental health was significantly affected by the COVID-19 epidemic. Fear of being ill, the isolation of lockdown, the financial need to work, the presence of COVID-19-like symptoms, gender, occupation, interpersonal conflicts, social media use, and social support have been identified as risk factors for adult mental health decline (Wang et al., 2020a). Older folks and low-income individuals are at heightened risk for mental illness. A population-based study revealed that sixty percent of adults suffer from high levels of stress and twenty-six percent suffer from severe anxiety. Higher

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levels of stress, anxiety symptoms, and depression symptoms were identified among

females, high-income individuals, and, interestingly, those with a high degree of

education. (Banna et al., 2020).

1.7.8.1 Suicidal Ideation and Bangladesh in COVID-19 Pandemic

COVID-19 pandemics are wreaking havoc in Bangladesh, a South Asian country

that has been hit hard by the disease. Restricted movements can help prevent viral infection

transmission, but they can also harm mental health by limiting exercise and physical activity

(López-Bueno et al., 2020; Codella et al., 2020; Tornaghi et al., 2021). According to studies,

people in Bangladesh and its neighboring nations commit suicide due to exceptional

COVID-19 dread (Dsouza et al., 2020 & Mamun et al., 2020). According to a recent

systematic review, Bangladeshi people are at higher risk of COVID-19-related mental health

disorders in South Asian countries (Hossain et al., 2020). As a result of their vulnerability

to mental health concerns, Bangladeshis may be at a higher risk of suicide during the

COVID-19 pandemic. Suicidality is a broad term that incorporates suicidal self-harming

behaviours such as suicidal thoughts, suicidal attempts, and suicide plans, with suicide

referring to the end of the process (Keenfer & Stenvig, 2021). Furthermore, the more

worrisome news is that during the most recent ten months, according to the daily observer,

COVID-19 was only to blame for 5,000 deaths, whereas suicide was to blame for 11,000.

Suicide is estimated to be present in 12.8% of the Bangladeshi population (Rahman et al.,

2021). Suicidal ideation declined after one year of pandemic onset, with 8.2% of subjects

reporting at least suicidal thoughts, 0.10 % planning suicide, and 0.70 % attempting suicide

(Mamun et al., 2021). Suicide rates in the southern region of Bangladesh (Chittagong) are

also higher, with 58.26 % having suicidal thoughts according to a study. The majority of

participants in this study experience employment loss due to this epidemic (Sujan et al.,

2021).

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In Bangladesh, the diagnosis and registration of suicides are heavily impacted by religious and social variables (Ferdous & Alam, 2021). A cross-sectional study conducted in Bangladesh revealed that younger patients, females, those with lower levels of education, students, nuclear families, those with a family history of suicide, and substance abusers tended to have more suicidal ideation (Mali, Akter & Arafat, 2018). Suicidal tendencies are caused by depression, inability to cope with a situation, lack of sufficient support and care, difficulties in socialisation, and disregard for mental health issues. Other typical causes cited by various publications include anxiety, considerable academic pressure, family issues, trauma, and societal pressure (Rony, 2018). According to the same source, when a woman is sexually harassed by a guy, she feels ashamed and occasionally attempts suicide because she believes her dignity has been utterly destroyed. In addition, workplace problems, financial restraints, affairs, marital violence, divorce, and physical disease are other risk factors (Shah, Ahmed, & Arafat, 2017). Less sleep, more sleep, cigarette smoking, past suicidal thoughts, suicide attempt history, family history of suicidality, depression, anxiety, using drugs, engaging in less physical activity, having poor self-reported health conditions, being comorbid, being at higher COVID-19 risk, having a fear of COVID-19 infection, and suffering from sadness and anxiety and stress were identified as factors significantly associated with suicidal ideation (Tasnim et al., 2020).

1.8 Background of this study

After overcoming COVID, an individual is susceptible to a variety of challenges. It is typical for people with the post-COVID syndrome to experience sleep disorders, memory problems, and coexisting illnesses. A person's physical and mental functioning may deteriorate due to several post-COVID diseases, leading to functional disability. Post-COVID neurological dysfunction might be another condition that has a significant impact on everyday living and daily activities.

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Asadi and Simani (2020) concluded that approximately 25% of COVID patients experienced headaches, dizziness, acute ischemic stroke, ataxia, seizures, and other neurological disorders. According to Hudzik and Marek (2014), ischemic stroke and headache are connected with an increased risk of suicide. In addition, being infected with COVID can contribute directly to an increased risk of suicide since persons infected with COVID-19 tend to secrete a specific neurotransmitter that may result in more significant inflammation. In suicidal individuals, inflammation can generate depressed symptoms associated with suicidal conduct and decreased immunological regulation (Conejero et al., 2021).

Numerous issues have been raised as to whether COVID survivors acquire suicidal tendencies only as a result of their infection? Why are they different from those who are not infected with COVID? Do any elements besides COVID infections that influence the suicidal behaviour of people in this pandemic? What measurements must be considered to create a preventive model in the current circumstance? The purpose of the current study is to determine the answers to these questions, as understanding the socio-demographic and psychological differences between two groups of populations was necessary to produce new ideas for future action.

A very few researchers have directly compared COVID-19-infected and non-infected populations' suicidal thoughts. In India, COVID-19 patients showed greater rates of suicide ideation than non-infected people due to the dread of dying, stigma, and social isolation (Goyal et al., 2021).

Developing effective prevention and intervention techniques depends on pinpointing the socio-demographic factors that lead to suicidal ideation. Numerous possible risk factors have been found after investigations on the socio-demographic aspects linked to suicidal thoughts. A number of literatures suggest that being female,

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having a low income, not being married, having a history of mental illness, going through

stressful life events, and seeing suicidal behavior in family or friends can all make an

individual more likely to have suicidal thoughts (Nock et al., 2008; Klonsky & May, 2015;

Anitha et al., 2017).

Effective prevention and intervention for diminishing suicidal rate efforts include

identifying factors. Recent studies have examined how socio-demographic and

psychological factors moderate the risk-suicidal ideation link. According to these studies,

sociodemographic and psychiatric characteristics may be important predictors of suicidal

ideation (Drapeau et al., 2010; Zhang et al., 2021). Breen et al. (2017) discovered that the

relationship between stressful life events and suicidal ideation was increased among

individuals with high levels of hopelessness, a psychological factor associated with suicide

risk. In Iran, anxiety and depression were risk factors for COVID-19 patients' suicide

ideation (Dehning et al., 2020).

A number of studies have looked at the relationship between psychological

disstress, depression, suicide ideation, and level of well-being throughout the pandemic.

Xiong et al. (2020) discovered a correlation between depression, anxiety, and suicidal

ideation among healthcare employees during the pandemic in China. The study also found

that healthcare employees who reported higher levels of social support experienced less

psychological distress and were less likely to report suicidal ideation.

1.9 Rationale of the Study

Bangladesh is a densely populated nation that was adversely affected by the

coronavirus pandemic like the rest of the world. Mental health is seen as being of

paramount importance by stakeholders globally. The World Health Organization

acknowledges that suicide is the fourth-largest cause of mortality among 15-29-year-olds

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and the global public health crisis after the COVID pandemic. Because of the current state

of affairs, it becomes increasingly vital to develop a suicide prevention strategy.

Understanding the differences in detail between COVID infected and non-infected

people regarding suicidal ideation is essential because this information is scarce globally.

Researchers want to explore the factors that play a vital role in developing suicidal

ideation, as it has been crucial to propose intervention plans in the post-COVID era. The

difference between the two groups of population (COVID infected and COVID non-

infected) in terms of suicidal ideation would be also explored to get better knowledge in

devising intervention plans for the COVID situation.

The purpose of the present study was to compare the data gathered from two

different subsets of the population in Bangladesh that have not been explored before in

Bangladesh. Estimating the socio-demographic factors and psychological components to

predict suicidal ideation will help construct new ideas for assessing suicidal ideation in the

context of Bangladesh. Discovering the associations between the psychological

components will help to understand the vulnerability in which area of mental health can

lead to forming suicidal ideation in a pandemic situation.

1.10 Objectives of the Study

The outcomes that have been targeted to be achieved via the conduct of research

are referred to as the research objectives. In the current investigation, the following

objectives have been determined following the results of the literature review and the

justification presented for the study-

1. Comparing the difference of suicidal and non-suicidal ideation in terms of

    some demographic.

2. Identifying the socio demographical factors those play significant role in

    developing Suicidal ideation.

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3. Investigating the effect of socio demographical factors and psychological factors to predict suicidal ideation.

4. Estimating the association among wellbeing, psychological distress, depression, and suicidal ideation in COVID-19 pandemic.

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Chapter 2

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Methodology

2.1 Design

The researcher evaluated suicidal ideation (SI) and related factors among COVID-19 infected and non-infected individuals in Bangladesh as part of a cross-sectional, analytical investigation. Cross-sectional analytical research design provides a thorough knowledge of the study subject or phenomenon of interest. A cross-sectional study investigates multiple population features at once and collects preliminary data that can be used to build a new study or support prior research. According to the purpose and time dimension, the current quantitative research aimed to survey a specific population for a single period to determine the difference of a specific phenomenon between two populations, the association among variables of interest, and identify specific socio-demographical variables that contribute to developing suicidal ideation. Researchers choose a sample from the target population based on inclusion and exclusion criteria that ideally represent the population to ensure the generalizability of findings. The variables include demographical characteristics and psychological constructs that were both categorical (participants' status, gender, age, etc.) and also continuous (socio-economic status, level of depression, etc.) The acquired knowledge would help design future research, and the study is entirely replicable. As a result, the cross-sectional survey approach has been used for the current study, which intends to investigate the suicidal phenomena across two populations simultaneously under a pandemic context. The outcomes of this study will assist in identifying new directions for future research on developing a model for community-level suicide prevention.

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2.2 Instruments

Four established questionnaires have been used as research instruments to identify the level of well-being, psychological distress, and hopelessness to detect suicidal ideation and depression. The questionnaires have been presented as follows:

- **WHO-5 Wellbeing Index:** A valid Bangla version of the five-item scale that Faruk and his colleagues have adapted to measure well-being's objective representation (Faruk et al., 2021). The scale showed good internal consistency (Cronbach alpha = 0.754) and test-retest reliability (r = 0.713), as well as divergent validity (r = 0.443, $p<$ 0.01 with the Bangla version of Perceived Stress Scale-10) and convergent validity (r = 0.542, $p<$ 0.01 with the Bangla version of Warwick-Edinburgh Mental Well-Being Scale). In exploratory factor analysis, the data showed that the scale comprised one factor, which explained 38.68% of the total variation. The confirmatory factor analysis also supported the factor structure ($2 =$ 295.852, 2/df =2.017, RMSEA = 0.062, CFI = 0.986, TLI = 0.964, and SRMR = 0.0255).

- **General Health Questionnaire (GHQ-12):** The GHQ consists of 12 items, a four-point Likert scale (Ilyas & Ayesha, 2002). The 12-item scale consists of 6 positive and 6 negative items. It is a Likert-type scale having 4 points response choices. The response options range from 0 to 3 for each item, and the full score ranges from 0-36, where a higher score indicates a higher level of mental distress. There is a significant correlation r(48)=0.625, $p<0.001$ between scores of English and Bengali versions, indicating the translation reliability of the scale. Test-retest reliability of the coefficient of the Bengali version was found to be 0.57 with a gap of two weeks. The Cronbach's alpha coefficient for the internal consistency of the Bengali version was 0.82.

- **Depression scale:** Depression scale was developed by Zahir Uddin and Mahmudur Rahman (Department of Clinical Psychology), is a five-point rating system with 30 items (Uddin & Rahman, 2005). The scores range from "not at all applicable" for a score of 1 to "not applicable" for a score of 2, "uncertain" for a score of 3, "a bit applicable" for a score of 4, and "completely applicable" for a score of 5. The total score and degree of depression were indicated by the sum of all values (for 30 items). The score of this scale is divided into four domains where 30-100 means minimal depression, 101-114 means mild, 115-123 means moderate and 124-150 means severe depression. The cutoff point on the scale used to distinguish between people who are clinically depressed and those who are not was 94. The scale was confirmed to be a trustworthy measure by the split-half reliability (Guttman split-half r = 0.7608, p 0.01 and the test-retest reliability (r = 0.599, $p<0.01$) tests. The rating scale also measured the scale's concurrent validity. The acquired scores on the depression scale were favourably linked with the psychiatrist's evaluation of depression (r = 0.377, $p<0.01$) and the patient's self-rating of depression (r = 0.558, $p<0.01$). The depression scale's discriminability (F = 85.386, $p<0.01$) further demonstrated its positive concurrent validity. By calculating the correlation between the present depression scale and the depression subscale of the translated version of the Hospital Anxiety and Depression scale, the construct validity of the current scale was estimated. Two scales were discovered to be positively associated (r = 0.716, $p<0.01$), and analysis of the Cronbach alpha coefficient in the present study showed that this measure had an adequate level of internal consistency (= 0.87). This scale is very suitable for detecting depression in the context of Bangladesh.

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- **Beck Hopelessness Scale:** The Beck hopelessness scale has been adapted in the Clinical Psychology Department, the University of Dhaka, scoring 0-15+ (Uddin M. Z. et al., 2005). It is a common tool to assess suicidal ideation in Bangladesh (Uddin M. Z. et al., 2005; Uddin, Faruk, and Khanam, 2013; Pervin and Ferdowshi, 2016). Test-retest reliability co-efficient of the Bangla version of the scale was r=0.81 ($p<0.01$); the split half reliability co-efficient: r=0.59 ($p<0.01$) and the alpha (Cronbach) co-efficient: α=.56 ($p<0.01$). Thus the Bangla version of BHS is reliable and had moderate internal consistency for identifying the moderate level of hopelessness. The cut-off point of the scale is 9-14, which indicates the person is suicidal with no immediate danger but requires frequent monitoring and 15+ indicates that the person is at a definite risk of taking the attempt and needs vital care to be protected from suicidal ideation. The BHS has been shown to have distinct associations with stress and anxiety.

2.3 Participants

Four questionnaire were administered to 656 participants, who were divided into COVID infected and COVID non-infected groups. Six hundred thirty-four data have been successfully entered into SPSS. Incomplete data have been reduced in size to prevent survey omissions. The total number of participants has been attained through online and in-person interviews. In the current study, numerous demographic characteristics of the sample have been identified. In the research sample, there were students, day labourers, service holders, and minority individuals from hill tracks. Three hundred ninety-three of the respondents were male, while the remaining were female; 504 were young adults. The remaining participants were middle-aged adults; 472 had a bachelor's degree or above, while the rest had a high school education or less. Four hundred eighty-four people indicated they belonged to the middle class, whereas only a few were from the upper class.

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The majority of COVID survivors claimed that none of their family or relatives had died, prompting us to question whether or not the current study's participants had experienced sadness or loss. Very few COVID-recovered individuals were admitted to a hospital during their infection. Diabetes and hypertension were reported to be the most prevalent co-occurring disorders across both individuals. In addition, a negligible proportion of individuals reported visiting a psychiatrist for a mental health illness and receiving a particular diagnosis.

2.4 Exclusion and Inclusion Criteria

The exclusion and inclusion criteria were adhered to in order to recruit the relevant individuals for the current study, for which the following criteria were established.

Inclusion:

The study aimed to include a wide variety of participants, ranging in age from 18 to 50, both male and female. Those who had previously contracted COVID-19 and recovered were eligible for recruitment, as were those who had tested positive for COVID-19 but had not yet recovered. The study took place to understand the long-term effects and potential differences between individuals who had recovered from the virus and those still infected. This strategy assured a more inclusive and comprehensive analysis of the effects of COVID-19 on a diverse variety of individuals.

Exclusion:

The study needed to exclude some things to ensure it was valid and kept its goal. People with schizophrenia, bipolar mood disorder, or any other kind of psychosis, and people with any addiction were not allowed to participate. Also, only people between 18 and 55 were allowed to join. Furthermore, no subjects with suspected symptoms were chosen without first being tested. It was done to reduce the chance of getting erroneous outcomes or factors that needed clarification on the results. By focusing on a particular

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subset of the population without any possible confounding factors, these careful selection

criteria were meant to ensure that the study's results were accurate and reliable.

2.5 Sampling Technique

The procedures of purposive and snowball sampling were used to choose research

participants. Sampling on purpose is also known as judging, selective, and subjective

sampling. This is a non-probability sample in which participants are chosen based on the

research design and objectives and their individual qualities (Ashley, 2020). The study

was required to collect samples from both COVID-infected and COVID non-infected

populations. The maximum variation methodology of purposive sampling methods has

been strictly adhered to. As research participants, various examples pertinent to a suicidal

phenomenon in a COVID context have been identified. Moreover, the snowball sampling

method was utilized because several of our research participants mentioned collecting data

from the same group (Simkus, 2022). In the majority of instances, the participants refer to

a single individual; hence we employ the snowball sampling technique.

2.6 Recruiting Research Assistants

Two psychology graduates currently studying MS in Clinical Psychology at Dhaka

University have been hired to collect data. A guideline that had been written in Bengali to

collect data has been provided, followed by offering training on collecting, preserving, and

transferring data while maintaining ethical protocol. They will also be offered a fixed

remuneration with the logistic cost.

2.7 Data Collection Process

The research problem has been fixed by observing the current suicidal phenomena,

brainstorming, theoretical validation, and hypothesis formation. The cross-sectional

analytical survey design has been followed to estimate the sample population to collect

and analyze data. The sample population will be drawn based on exclusion and inclusion

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criteria following purposive and snowball sampling techniques. The questionnaires have

been circulated by Google doc file and administered in face-to-face interaction. Google

doc file has been circulated in numerous group, messenger and what's app. Maintaining

COVID safety protocol have been ensured during collecting data in this pandemic

situation while face to face interaction. Recovered COVID patients have been selected by

asking verbally about their infection history and they had been assigned for group-1.

Persons who had not been infected have been chosen for group-2 in a similar way. Written

consent have been taken to collect data from both population groups. Accumulated data

has been analyzed using SPSS software, followed by designing results and a discussion

section based on the output of SPSS analysis. The references of every piece of evidence or

literature will be presented at the end of the report. The score of the Beck Hopelessness

Scale have been calculated immediately after receiving the data to assess the suicidal

ideation of participants. A total 78 participants with suicidal ideation (SI) have been

provided Kaan Pete Roi (KPR) hotline number for crisis intervention and NTCC's

physical setup address. Below is a flow chart illustrating how information was gathered

during face-to-face interactions.

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Figure 2.2

Flow chart of data collection process

```
┌─────────────────────┐      ┌─────────────────────┐      ┌─────────────────────┐
│ Selecting            │      │ Participants were    │      │ Explaining about the │
│ participants by      │  →   │ asked about their    │  →   │ current study and    │
│ snowball and         │      │ infection history    │      │ how their            │
│ purposive sampling   │      │                      │      │ participation will   │
│ technique            │      │                      │      │ help to identify     │
│                      │      │                      │      │ their level of       │
│                      │      │                      │      │ wellbeing, distress, │
│                      │      │                      │      │ depression and SI    │
└─────────────────────┘      └─────────────────────┘      └─────────────────────┘
                                                                      ↓
┌─────────────────────┐      ┌─────────────────────┐      ┌─────────────────────┐
│ Immediate scoring    │      │ Administering the    │      │ Taking the verbal    │
│ the Beck             │      │ instruments          │      │ and written consent  │
│ Hopelessness Scale   │  ←   │                      │  ←   │ about their          │
│ and providing the    │      │                      │      │ agreement to         │
│ hotline number of    │      │                      │      │ provide data         │
│ KAAN PETE ROI and    │      │                      │      │                      │
│ NTCC for seeking     │      │                      │      │                      │
│ support if necessary │      │                      │      │                      │
└─────────────────────┘      └─────────────────────┘      └─────────────────────┘
          ↓
┌─────────────────────┐
│ Thanking the         │
│ participants for     │
│ providing data       │
│ patiently            │
└─────────────────────┘
```

2.7.1 Data Preservation and Transfer

RAs have been instructed to store data maintaining the highest privacy. The hard copy needs to be locked in a secured space (file, lock up etc.) to secure the confidentiality of participants. The Google doc have been circulated to collect online data that will have been stored in the iCloud database. The hardcopy of data was needed to transfer to the principal investigator from research assistants through courier services or local delivery services, ensuring data preservation protocol.

2.7.2 Data Analysis

The data analysis was carried out by adhering to the SPSS Version 24. analysis. It was determined by using Mann Whitney U test to see how much of a difference there was

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between the two populations (COVID and non-COVID). It was also determined by using

binary logistic regression analysis to find out how closely the variables are able to predict

the suicidal ideation (Participant's status, well-being, suicidal ideation, and psychological

distress). In addition to this, the chi-square test was carried out in order to comprehend the

connection between psychological distress, well-being, and suicidal ideation in terms of

participant's status.

2.7.3 Challenges of Data Collection

Reaching the participants was the most challenging thing of this study. We have

encountered numerous obstacles during data gathering, data retention, service transfer, and

data analysis. The hurdles and our strategies for overcoming them are briefly explained

here.

Participants did not demonstrate willingness to submit data; instead, they

demanded remuneration. Sometimes they were concerned about whether or not the

research assistant would get payment. They believe this is a waste of time and declined to

answer after providing half of the information needed. After explaining the purpose of the

study, research assistants modestly requested data from willing participants and collected

data only from those who had voluntarily provided it.

Referring the participants for mental health services was another challenge for the

current research. Many participants with suicidal ideation refused to take mental health

services due to social stigma, especially the participants from rural areas and the

underprivileged participants. They did not take the suicidal issue too seriously to seek

sessions. The researcher could not refer all the participants for psychotherapy sessions

based on their convenience. However, the researcher convinced some participants to take

psychotherapy sessions by talking about mental health and the connection between body

and mind.

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Data preservation and reaching data to principal investigator maintaining confidentiality was another big challenges where researchers used icloud to preserve data from online modality and safe locker to kept data confidential. Local courier services have been used to transfer data from research assistants to principal investigator keeping data confidential from outer persons.

Both researchers and research assistants have gained valuable experiences during this study despite encountering several obstacles. Some respondents found this survey illuminating and exciting as they learned about their mental health status. Some used the examination to find suicidal ideas they had not before considered.

2.8 Ethical consideration

The ethical review committee of the Department of Clinical Psychology has granted ethical approval for two years. The data collection guidelines, questionnaires, demographic information sheet, consent form, training procedure, and research proposal have been submitted to the committee with the application. After obtaining the necessary ethical approvals, researchers and study assistants began to collect data from respective participants, at their convenience, by obtaining written consent and distributing questionnaires. Both the primary investigator and the research assistants have implemented the following terms.

- Any changes made to the details submitted for ethical approval should be notified and sought by the investigator(s) to the Department of Clinical Psychology Ethics Committee before incorporating the change.

- The investigator(s) should inform the committee immediately in case of any unexpected adverse events hamper the well-being of the participants or affect the ethical acceptability of the research.

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- The research project is subject to monitoring or audit by the Department of Clinical Psychology Ethics Committee.

- The committee can cancel approval if the ethical conduct of the research is found to be compromised. If the research cannot be completed within the approved period, the investigator must apply for an extension.

- The investigator must submit a research completion report.

Data has been collected by maintaining the person's confidentiality and the information; no unauthorized persons had access to the data. The informed written consent was taken from the participants, and finally, participants with suicidal ideation were offered a crisis intervention program.

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Chapter 3

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Results

This study was motivated by a desire to examine the difference in suicidal ideation between COVID-19 infected and COVID-19 non-infected groups. Six hundred thirty-four respondents were investigated and separated into two groups: those infected with COVID-19 and those not infected with COVID-19. Some exceptional discoveries have been uncovered; all of those are detailed below.

3.1 Demographical outcome

The first objective of this study was to identify and compare the difference in the extent of suicidal ideation and associated factors between two groups of the population named COVID-19 infected and COVID-19 non-infected. Table 3.1 illustrates the socio-demographical representation in terms of participant's status (COVID infected or COVID non-infected), gender, age, occupation, educational qualification, socioeconomic status, marital status, types of residence, whether any relative got infected or not, whether any relative died from COVID or not and hospitalization.

The findings indicated that suicidal ideation appears to be higher among the COVID non-infected participants compared to COVID infected participants. 38.52% of COVID infected participants have been identified as suicidal, and 61.48% of COVID non-infected have been identified as suicidal. This table also represents that males suffer more from suicidal ideation than females, as 21.4% of male participants have been suspected of being suicidal, whereas 15.8% of females have been suspected of being suicidal.

The table also comprehends that suicidal ideation is more prominent among young adults than middle-aged adults, where 21.0% of young adult participants have been identified with suicidal ideation; on the other hand, only 12.4% of participants are suffering from suicidal ideation. The findings reflected that unemployed people are more vulnerable to suicidal ideation than any other occupation. In this study, the service holders

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are steadier towards suicidal ideation. Suicidal ideation does not vary based on educational

qualification; here, the percentage of suicidal ideation is almost equal in the two types of

participants. Suicidal ideation enormously varies according to the socioeconomic status

revealed by these findings. 22.4% of participants from the lower middle class have been

identified with suicidal ideation, which is higher comparing the higher class (19.2%) and

middle class (18.6%). A good number of married participants have been found as suicidal

in this study (34.82%). In this study, rural people (21.5%) are more vulnerable to suicide

than urbanized people (18.1%). Suicidal ideation was higher among those participants

whose relatives had not been infected and died from the coronavirus infection. At last,

suicidal ideation is higher among those who did not admit to the hospital during their

infection period.

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Table 3.1

Demographical representation of Suicidal Ideation in terms of PS, gender, age, occupation, educational qualification, socio-economic status, marital status, Family member's infection from COVID, Death of relatives or family member from COVID and hospitalization.

	Non-suicidal		Suicidal	
	n	Row %	n	Row %
Participants Status (**PS**)				
COVID	270	52.73%	47	38.52%
Non-COVID	242	47.27%	75	61.48%
Gender				
Male	309	78.6%	84	21.4%
Female	203	84.2%	38	15.8%
Age range				
18-35	398	79.0%	106	21.0%
35-50	112	87.6%	16	12.4%
Occupation				
Student	305	79.4%	79	20.6%
Service	108	91.5%	10	8.5%
Business	23	79.3%	6	20.7%
Others	50	78.1%	14	21.9%
Unemployed	25	67.6%	12	32.4%
Educational Qualification				
Higher Secondary and below	125	80.1%	31	19.9%
Graduation and more	382	81.0%	90	19.0%

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Socio Economic Status				
Higher Class	41	80.8%	10	19.2%
Middle Class	394	81.4%	90	18.6%
Lower Middle Class	76	77.6%	22	22.4%
Marital Status				
Married	164	71.30%	39	34.82%
Unmarried	299	81.03%	70	18.97%
Divorced	7	77.78%	2	22.22%
Widow	1	50.0%	1	50.0%
Type of Residence				
Urban	330	81.9%	73	18.1%
Rural	179	78.5%	49	21.5%
Family member's infection from				
COVID				
Yes	164	83.2%	33	16.8%
No	347	79.6%	89	20.4%
Death of relatives or family				
member due to COVID				
infection				
Yes	69	84.1%	13	15.9%
No	441	80.2%	109	19.8%
Hospitalization due to COVID				
Yes	64	88.89%	8	11.11%
No	447	79.68%	114	20.32%

Note: Sociodemographic characteristics of the participants

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The graphical depiction of the outcome of this study has been presented in terms of participant's status, gender and age as follow-

Figure 3.1

Graphical representation of the difference between suicidal ideation in terms of participant's status

	Covid	Non-Covid
■ Non-suicidal	52.73%	47.27%
■ Suicidal	38.52%	61.48%
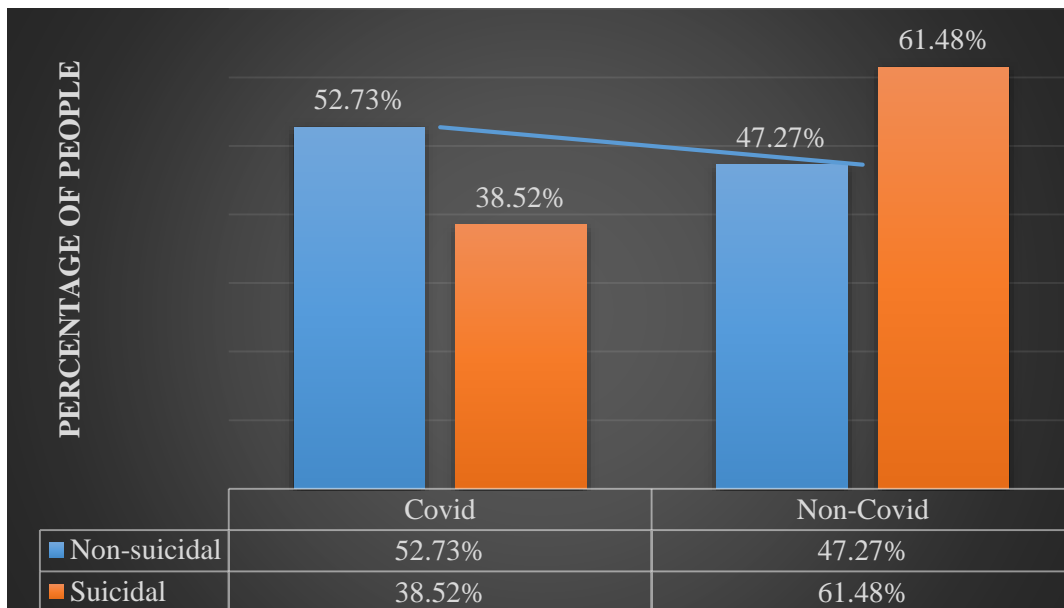
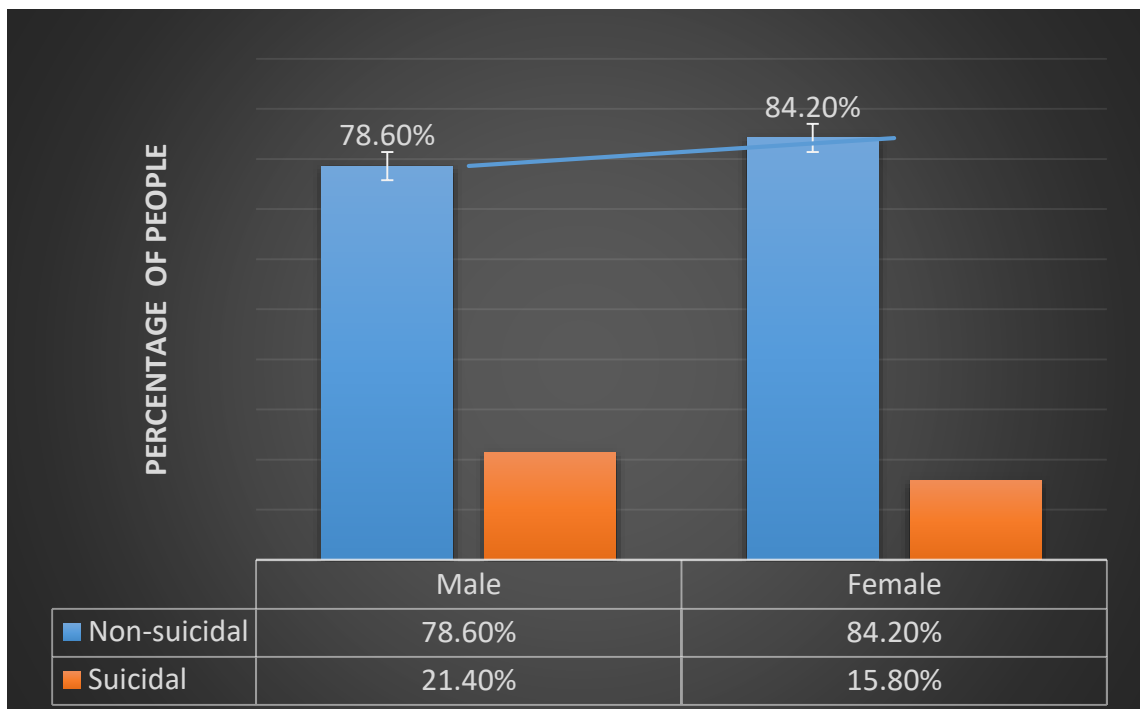*Note:* More COVID non-infected participants showed suicidal ideation than COVID-infected participants.

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Figure 3.2

*Graphical representation of the difference between suicidal ideation in terms of gender*

	Male	Female
■ Non-suicidal	78.60%	84.20%
■ Suicidal	21.40%	15.80%

Note: Male showed more suicidal ideation than female

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Figure 3.3

Graphical representation of the difference between suicidal ideation in terms of age

	18y -35y	35y -50y
■ Non-suicidal	79.00%	87.60%
■ Suicidal	21.00%	12.40%
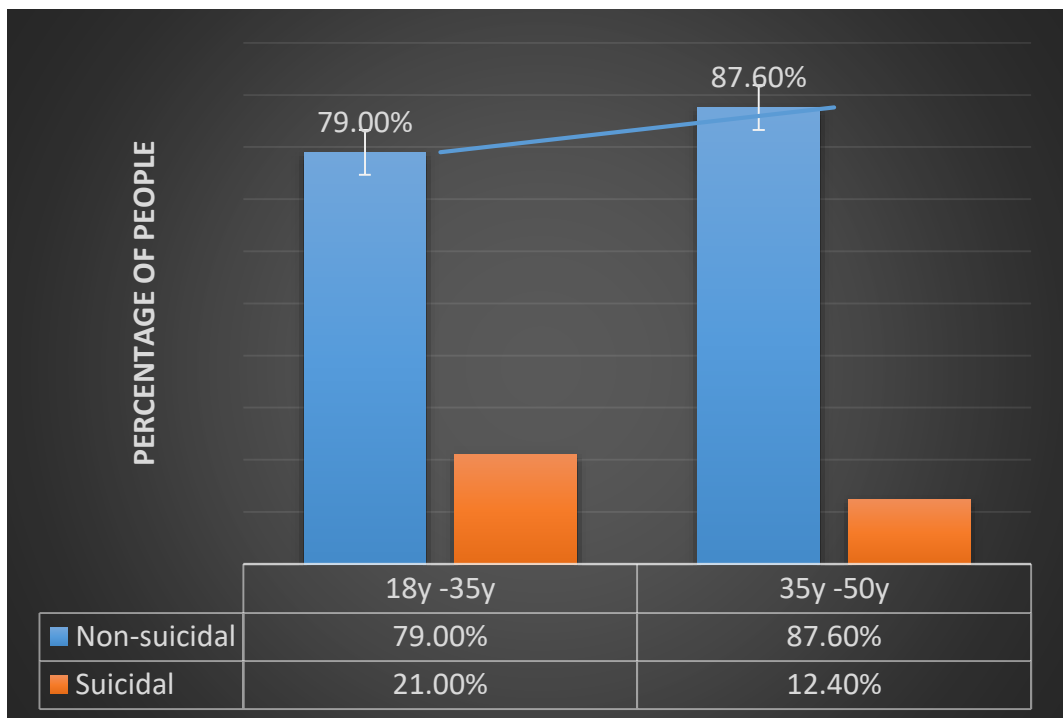
Note: Youngers showed more suicidal ideation than elders

3.2 Results of Mann Whitney U test between the demographical factors in terms of psychological factors

Statistical differences among demographical factors (COVID infected and COVID non-infected, male and female, young adult and middle adult, high education and HSC & below) of participants in terms of well-being, psychological distress, suicidal ideation, and depression have been calculated. The normality of data has been checked by performing Kolmogorom-Smirnov test (K-S test or KS test) and Shaprio-Wilk test. The results of Kolmogorom-Smirnov test (K-S test or KS test) for well-being, $D(580)= .088$, $p<.01$, psychological distress, $D(580)= .121$, $p<.01$, suicidal ideation $D(580)= .151$, $p<.01$ and depression $D(580)= .044$, $p<.01$ indicated that data of dependent variables do not follow normal distribution. The findings of Mahalonobis distance using 3 standard deviation indicated that there are significant outliers in the dependent variables (wellbeing,

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psychological distress, suicidal ideation, and depression) of current study. A non-parametric test was carried out for the purpose of our research in order to eliminate the influence of outliers (Forst, 2021).

A Mann-Whitney U test has been performed to estimate statistical difference between the demographical variables in terms of some factors. The score of the Mann-Whitney U test indicated that the psychological well-being of COVID-infected participants (*Mdn*= 13) is lower than the COVID non-infected participants (*Mdn*= 15) and the results is statistically significant, *U*= 51927.000, *z*= 4.655, *p*=.000, and *r*=019. However, there is no statistically significant difference in level of psychological distress between COVID infected (*Mdn*= 16) and COVID non-infected (*Mdn*= 16) groups, *U*=48267.500, *z*= -.859, *p*=.390 and *r*= -.033. A Mann-Whitney U test also indicated that the extent of suicidal ideation significantly higher among COVID non-infected participants (*Mdn*= 5) than the COVID-infected participants (*Mdn*= 3), *U*= 59729.000, *z*= 4.131, *p*=.000, *r*= .164. The score of Mann-Whitney U test for depression in both groups of the population reveals that COVID-infected people (*Mdn*= 79) are suffering from depression more than the COVID non-infected population (*Mdn*= 74) and the results is statistically significant, *U*= 41854.500, *z*= -3.457, *p*=.001 and *r*= -.138.

The score of Mann-Whitney U tests between male and female in terms of psychological factors shows that there is no statistically significant difference between males (*Mdn*= 15) and female (*Mdn*= 14) in terms of well-being, *U*= 37565.500, *z*= -1.131, *p*=.258 and *r*= -.047. There is a statistically significant difference between the male (*Mdn*= 17) and female (*Mdn*= 14) in terms of psychological distress where males showed more distress than females, *U*= 41361.500, *z*= -2.683, *p*=.007 and *r*= -.107. There is a statistically significant difference between the male (*Mdn*= 4) and female (*Mdn*= 3) in terms of suicidal ideation in the current study, *U*= 42867.500, *z*= -2.014, *p*=.044 and *r*= -

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.079 where males possess more suicidal ideation than females. There is no significant difference between the male (*Mdn*= 78) and female (*Mdn*= 76) in terms of depression in the current study, *U*= 45813.000, *z*= -.498, *p*=.618 and *r*= -.019.

The Mann-Whitney U test between young adult and middle adult in terms of well-being indicated that young adult (*Mdn*= 15) possessed higher level of wellbeing than middle adult (*Mdn*= 13) and the results is statistically significant, *U*= 24417.000, *z*= -2.434, *p*=.015 and *r*= -.101. There is no significant difference between the young adult (*Mdn*= 16) and middle adult (*Mdn*= 17) in terms of psychological distress in the current study, *U*= 34348.500, *z*= -.958, *p*=.338 and *r*= .038. There is a statistically significant difference between the young adult (*Mdn*= 4) and middle adult (*Mdn*= 3) in terms of suicidal ideation where young people showed more suicidal ideation than middle aged people in the current study, *U*= 26986.500, *z*= -3.022, *p*=.003 and *r*= .011. There is no significant difference between the young adult (*Mdn*= 3) and middle adult (*Mdn*= 3) in terms of depression in the current study, *U*= 34582.500, *z*= 1.405, *p*=.160 and *r*= .056.

The Mann-Whitney U test between highly educated participants and the participants with higher secondary and below in terms of well-being indicated that the level of wellbeing was higher among the highly educated participants (*Mdn*= 15) than the participants with higher secondary and below (*Mdn*= 13) and the difference is statistically significant, *U*= 36572.000, *z*= 2.060, *p*=.039 and *r*= .085. The test scores of Mann-Whitney U test between highly educated participants and the participants with higher secondary and below in terms of psychological distress indicated that highly educated participants (*Mdn*= 16) showed lower distress and the participants with the qualification of higher secondary and below (*Mdn*= 18) showed higher distress and this results is statistically significant, *U*= 30124.000, *z*= -3.611, *p*=.000 and *r*= -.143. Suicidal ideation does not vary in terms of educational qualification because participants with higher

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educational qualifications (*Mdn*= 4) and the participants with the qualification of higher secondary and below (*Mdn*= 3) reveal very close results, *U*= 38030.500, *z*= -3.611, *p*=.706 and *r*= .015. There is no significant difference between the highly educated participants (*Mdn*= 76) and the participants with higher secondary and below (*Mdn*= 80) in terms of depression in the current study, *U*= 33185.500, *z*= .377, *p*=.050 and *r*= -.078.

3.2.1 Results of The Kruskal-Wallis test of socio economic status in terms of psychological factors

The Kruskal-Wallis test has been performed to identify that whether any difference in the mean rank among psychological wellbeing, psychological distress, suicidal ideation, and depression in terms of socioeconomic status or not. The findings of the Kruskal-Wallis test concluded that there is a difference in the mean rank among psychological factors in terms of socioeconomic status.

The level of wellbeing were significantly affected by socioeconomic status, $H(2) = 7.691, p < .05$. Mann–Whitney tests were used to follow up this finding by applying a Bonferroni correction. The table of pairwise comparison of socio economic status revealed that there is no significant difference between lower middle class and higher class, no significant difference between higher class and middle class in terms of wellbeing. A significant difference has been found between lower middle class and middle class.

The level of psychological distress were significantly affected by socioeconomic status, $H(2) = 21.045, p < .01$. Mann–Whitney tests were used to follow up this finding by applying a Bonferroni correction. The table of pairwise comparison of socio economic status revealed that there is no significant difference between middle class and higher class in terms of psychological distress. A significant difference has been found between middle class and lower middle class. There is also a significant difference between higher class and lower middle class.

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The Kruskal-Wallis test showed that the suicidal ideation does not significantly affected by socio economic status, $H(2)= 2.324$, $p=.313$. The pairwise comparison based on socio economic status had not been possible to calculate due to not having any significant difference among the groups.

The level of depression were significantly affected by socioeconomic status, $H(2)= 17.103$, $p < .01$. Mann–Whitney tests were used to follow up this finding by applying a Bonferroni correction. The table of pairwise comparison of socio economic status revealed that there is no significant difference between higher class and middle class in terms of depression. A significant difference has been found between higher class and lower middle class. There is also a significant difference between middle class and lower middle class.

Table 3.2

Pairwise comparison of socio economic status of well-being, distress, and depression.

Dependent Variable	(*I*) Socio Economic Status	(*J*) Socio Economic Status	Test Statistics (*I-J*)	*p*	*r*
Wellbeing	Lower Middle Class	Higher Class	48.998	.090	0.070
		Middle Class	52.324	.006	0.114
	Higher Class	Middle Class	-3.326	.893	.005
Psychological distress	Middle Class	Higher Class	4.951	.853	.007
		Lower Middle Class	-92.542	.000	-.181
	Higher Class	Lower Middle Class	-87.591	.005	-.110
Depression	Higher Class	Middle Class	-32.477	.667	-.048
		Lower Middle Class	-108.241	.002	-.138
	Middle Class	Lower Middle Class	-75.764	.001	-.149

Note: p<.01, r= effect size

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3.3 Results of Binary Logistic regression analysis in terms of Suicidal Ideation

Binary logistic regression was performed to assess the impact of several factors on the likelihood of developing suicidal ideation. The assumption of linearity has been checked before running the regression model. The model contained twelve independent variables (participants Status, gender, age, educational qualification, socio economic status, marital status, type of residence, having co-morbid diseases, types of co-morbid diseases, wellbeing and depression). The full model containing all predictors are statistically significant, ($\chi 2$ (5, N = 634) = 140.312, $p < .001$) indicating that the model is able to distinguish between respondents who reported and did not report a suicidal ideation. The model as a whole explained between 21.6% (Cox and Snell R square) and 34.6% (Nagelkerke R squared) of the variance in suicidal ideation, and correctly classified 83.2% of cases. As shown in Table 3.3, total seven of the independent variables made a unique statistically significant contribution to the model (participant's status, gender, age, having co-morbid diseases, types of co-morbid diseases, wellbeing and depression). The strongest predictor of reporting a suicidal ideation was whether participants COVID infected or not, recording an odds ratio of 2.95. The findings indicate that respondents who have not been infected by COVID are 2.95 times more likely to report suicidal ideation than those who have been infected by COVID, controlling for all other factors in the model. The odds ratio of .558 for gender is less than 1, indicating that for being male, respondents were .558 times less likely to develop suicidal ideation, controlling for other factors in the model. The odds ratio of .405 for age is less than 1, indicating that for being young, respondents were .405 times less likely to develop suicidal ideation, controlling for other factors in the model. The odds ratio of .344 for co-morbid diseases is less than 1, indicating that for suffering from co-morbid diseases, respondents were .344 times less likely to develop suicidal ideation, controlling for other factors in the model. The odds

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ratio of 1.077 for wellbeing, indicating that for poor wellbeing of respondents were 1.077

times more likely to develop suicidal ideation, controlling for other factors in the model.

The odds ratio of 1.078 for depression, indicating that for having depression of

respondents were 1.078 times more likely to develop suicidal ideation, controlling for

other factors in the model.

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Table 3.3

Binary Logistic Regression Predicting Likelihood of Reporting a Suicidal Ideation

	B	*S.E.*	Wald	df	*p*	*Exp(B)*	95% C.I. for *Exp(B)*	
							Lower	*Upper*
Participants Status	1.080	.266	16.498	1	.000	2.946	1.749	4.962
Gender	-.583	.274	4.528	1	.033	.558	.327	.955
Age	-.903	.401	5.075	1	.024	.405	.185	.889
Occupation	.116	.125	.881	1	.354	1.123	.879	1.433
Educational Qualification	-004	.350	.000	1	.991	1.004	.506	1.992
Socio Economic Status	-.141	.264	.286	1	.593	.868	.517	1.457
Marital Status	-.560	.334	2.810	1	.094	.571	.297	1.099
Type of Residence	-.103	.272	.143	1	.705	.902	.530	1.536
Having co-morbid diseases	-1.066	.491	4.713	1	.030	.344	.132	.902
Type of comorbid diseases	.577	.264	4.792	1	.029	1.782	1.062	2.988
Wellbeing	.074	.033	5.144	1	.023	1.077	1.010	1.149
Depression	.075	.009	69.276	1	.000	1.078	1.059	1.097

Note: S.E.= Standard Error; df= degree of freedom; Exp(B)= Exponentiation of the B coefficients or odds ratio

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3.4. Results of Chi-Square tests for Wellbeing and Psychological distress in terms of Suicidal Ideation

The last objective of the current study was to estimate the association between the level of distress, wellbeing, and suicidal ideation during the COVID-19 pandemic. A clear picture of this association has been obtained from table 3.4, which is representing the association among dependent variable suicidal ideation (suicidal/non-suicidal), independent variable wellbeing (poor/high), and the level of distress (non-distressed/distressed/severe distressed). There is no significant association between wellbeing and suicidal ideation for the total number of participants. However, the level of distress is significantly ($\chi 2$ (3, N = 634) = 70.998, $p < .001$) associated with suicidal ideation in the same population. Identical results have also been found for COVID infected participants that wellbeing was not-associated with suicidal ideation; conversely, the level of distress was significantly ($\chi 2$ (3, N = 634) = 18.606, $p < .001$) associated with suicidal ideation. There is a significant ($\chi 2$ (1, N = 634) = 4.438, $p < .001$) association between wellbeing and suicidal ideation for the COVID non-infected participants. The level of distress also significantly ($\chi 2$ (3, N = 634) = 55.314, $p < .001$) associated with suicidal ideation for the same population.

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Table 3.4

Frequencies and Chi-Square Results for Wellbeing and Psychological distress in terms of Suicidal Ideation

			Non-suicidal		Suicidal		χ^2
			n	%	n	%	
COVID Infected	Wellbeing	Poor	100	85.5	17	14.5	.025
		High	149	86.1	24	13.9	
	Psychological Distress	Non-distressed	130	94.2	8	5.8	18.606**
		Distressed	106	80.9	25	19.1	
		Severe distressed	34	70.8	14	29.2	
COVID Non-infected	Wellbeing	Poor	53	67.1	26	32.9	4.438*
		High	169	79.0	45	21.0	
	Psychological Distress	Non-distressed	135	95.7	6	4.3	55.314**
		Distressed	77	64.2	43	35.8	
		Severe distressed	30	53.6	26	46.4	
Total	Well-being	Poor	153	78.1	43	21.9	1.416
		High	318	82.2	69	17.8	
	Psychological Distress	Non-distressed	265	95.0	14	5.0	70.998**
		Distressed	183	72.9	68	27.1	
		Severe distressed	64	61.5	40	38.5	

*$p < .05$ **$p < .001$

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Chapter 4

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Discussion

The research aimed to explore some designated objectives. The goal of the study is to compare the level of suicidal ideas in COVID-infected and non-infected populations, find socio-demographic factors that contribute to developing suicidal thoughts and find out how socio-demographic and psychological factors affect suicidal thoughts. Moreover, the interrelation among suicidal ideation, well-being, and distress in the pandemic situation in our culture, were considered during the investigation. The interpretation revealed some unique and crucial findings, which are discussed below.

Our first objective was comparing the difference of suicidal and non-suicidal ideation in terms of some demographic factors. The initial findings suggested that COVID non-infected participants have more significant suicidal ideation than COVID infected ones. Suicidal ideation did not rise during the initial phase of the COVID pandemic (Giner et al., 2022). However, it increased with time among individuals with confirmed infection and frontline workers (Xie et al., 2022). However, Turecki and Brent (2020) narrated that suicidal ideation varies by gender, age group, geographic region, and sociopolitical environment, and numerous risk variables are connected with suicidal thought. However, the impact of infection on developing suicidal ideation remains unclear as a comparison between two separate populations has not been conducted in a widespread manner. The possibility exists that the recovery from life-threatening illnesses during the ongoing pandemic instills a sense of hope in patients who have recovered. In addition, the psychological symptoms may vary with the course of the infection. Those who were infected and recovered from the pandemic relatively earlier may be able to fight successfully with their mental health issues. The time lapse between infection and data collection can play a significant factor in detecting suicidal ideation.

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Moreover, acute loneliness and being separated from the closest one has also aggravated the picture of suicidal ideation both in the COVID infected and non-infected people. A total of 47 participants from the COVID infected group reflected suicidal ideation (SI), and numerous research findings also supported that. Some findings also recommend that those who survived the COVID-19 are at increased risk of many mental health disorders (Xie et al., 2022).

Nevertheless, other socio-demographic aspects have been also identified that might have a role on developing the suicidal ideation in pandemic. The findings indicated that male participants are more prone to suicide than female participants. Most researchers and clinicians concluded that females have more suicidal ideation (SI) than men. However, the current pandemic situation reveals some reverse phenomena. The male person who has an economic burden or is facing academic loss or other socio-economic distress suffers more from hopelessness. Bilsker and White (2011) have called male suicide a "silent epidemic". Epidemic due to its high incidence and growth in men's mortality, silent due to a lack of public awareness, a scarcity of explanatory research, and men's reluctance to seek help for suicide-related concerns. However, a Chinese study also revealed that the prevalence of suicidal ideation is higher in males (19.1%) (Lei shi et al., 2021). According to the findings of this study, the degree of well-being is more significant in males than it is in females, and depression is less common in males than it is in females. According to this recent studies, there is no difference in psychological distress between the genders. A cross-sectional study of more than 12 million Facebook users aged 18 and up found some exciting things (Gottert et al., 2022). 36.8% of men reported depressive symptoms, and 33.8% felt anxiety. Ironically, younger males are more likely to experience mental health issues than older males, with 44% of males aged 18 to 24 experiencing mental health

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issues compared to 22% males aged 55 or older. Consequently, these results unexpectedly

corroborated the result of the present research.

Other findings reflected that younger adults (21.0%) from 18 to 35 years old

possess more suicidal ideation (SI) than older adults (12.4%) from 35-50 years old.

Academic losses, financial crisis, relationship issues, sleep disturbances, dissatisfaction

with life, and many factors can develop hopelessness and suicidal thoughts. Another

research identified that performing less physical activity, poor self-reporting health

conditions, being co-morbid, taking drugs, being at higher COVID-19 risk, suffering from

depression & anxiety and having a fear of COVID-19 infection were significantly

associated with the risk of suicidal ideation among this population (Mamun et al., 2022).

There is an increased risk of suicide among young men in this epidemic, and it is essential

to pay attention to them. The government must take the required steps to prevent adults

from developing suicidal thoughts to attain this goal.

Additionally, the findings showed that the unemployed (32.4%) and students

(20.6%) both experience higher rates of suicidal ideation. This finding aligns with Hawton

et al. (2013), who thoroughly analyzed the association between unemployment and

suicide. Unemployed people are likelier than employed people to experience suicidal

thoughts (Milner et al., 2018). In our study, we found a connection between

unemployment and a higher risk of suicide. For young guys, the risk was particularly

considerable.

Sudden vacations and isolation separated them from their loved ones during this

pandemic, causing major relationship problems, loneliness, and frustration. 63.3 % more

university students in Greece had suicidal thoughts during the COVID-19 pandemic,

according to a survey of Greek university students (Kaparounaki et al., 2020). Aside from

this, their academic life was stagnant, and they endured inconceivable loss, which drew

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them down with extreme frustration. In April 2020, the incidence rate of suicidal ideation among university students was 12.8%. (Rafia et al., 2020). They identified various potential risk factors, including insufficient or excessive sleep, cigarette smoking, previous suicide attempts or suicidal ideation, a family history of suicidality, depression, anxiety, and stress.

Due to the COVID-19 pandemic, quarantine, prolonged financial and personal hardship, and unemployment were related to an increased risk of suicidal ideation (Goldman-Mellor et al., 2010; Oyesanya et al., 2015; Rafi et al., 2019). Economic insecurity due to losing employment and being out of business is the common factor for increasing suicidal ideation among the underprivileged population in this pandemic situation. The sources of income were terminated for an uncertain period, which induced hopelessness and insecurity among them. Sudden and limited lockdown in Bangladesh due to the COVID-19 pandemic increased the financial freight that has created psychosocial and socio-economic insecurity due to shortening the earnings (Doza et al., 2020).

The current study also showed that married, separated, and widowed people are more likely to have suicidal thoughts. Nevertheless, some studies show that being single, divorced, separated, or widowed is linked to a higher chance of suicidal thoughts. People who were not married, especially those who were divorced, were more likely to have suicidal ideation than people who were married. The study also found that men and women who had lost a spouse were more likely to have suicidal ideation (Simon et al., 2002). Another study found that divorced or split people were much more likely to commit suicide than those who were married or had never been married. The study (Carrington et al., 2016) also found that widowhood was linked to a higher chance of suicide, especially among older adults. However, the results of the current study on pandemics were only slightly different from those of earlier studies. During this pandemic, long-term

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quarantine, social isolation, and lockdown worsened family problems. Several studies

show that the COVID-19 pandemic has led to a rise in domestic violence because of

lockdowns, more stress, and less access to support services (Gosangi et al. and Peterman et

al., 2020). This phenomenon could make the mental health problem of having suicidal

thoughts worse for people in the pandemic situation. Therefore, the results of the current

study concluded that men, young adults, unemployed people, students, people who are

married, and those in poor socioeconomic conditions are more likely to have suicidal

thoughts during a pandemic.

A significant difference between the COVID infected and COVID non-infected

people in terms of psychological factors has been estimated in order to understand which

psychological factors contribute in developing suicidal ideation in pandemic situation. It

has been found that the COVID-infected participants showed poor well-being than the

COVID non-infected participants. However, the level of distress is very close in both

groups. The outcome of depression score for both groups demonstrates that COVID-

infected individuals are more depressed than COVID non-infected individuals. It was

found that people with COVID infected suffer from depressive symptoms, and their well-

being score would be lower. These findings have been supported by additional research;

for example, Rahman H.M. and his colleagues where they found that 138 COVID infected

patients showed 52.2% depressive symptoms due to maintaining isolation. Another

research showed that the COVID infected people showed an increased risk of anxiety

disorder, depressive disorder, stress, and adjustment disorder (Xie et al., 2022). On the

other hand, COVID non-infected people showed less depression and a higher level of

well-being, which can also be possible in this pandemic situation. Post COVID reaction,

early co-morbid health issues, changed lifestyle, memory disturbances, fatigue, and so

many complications can lead the COVID infected patient to develop a depressive mood.

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They might suffer from poor well-being or depression, but they still are hopeful regarding the future as they won this disease. They can suffer from anxiety and depression, but they can live long as suicidal ideation (SI) is not a diagnosis but a mental disorder symptom (Falcone et al., 2018). To gain more insight into this issue, we should sincerely explore the socio demographical and psychological factors of suicidal ideation (SI) of the people who are not infected by COVID separately and devise a community-based mental health approach to prevent suicide.

The current research shows no significant difference in well-being and depression between males and females. However, this study reflects that males possess a higher level of psychological distress and are more suicidal than females. The significant prevalence of psychological distress and suicidal ideation among males has been marked in numerous studies. Canetto and Sakinofsky (1998) indicated that females often display higher suicidal thoughts, while men consistently report higher rates of completed suicide. The report shows that men may be more likely to express their distress impulsively and commit suicide. Psychological distress and suicidal ideation are closely associated with various mental health disorders, such as depression, anxiety, substance abuse, and post-traumatic stress disorder (PTSD) for males. The suicide rate among males in their 40s and 50s was higher in the UK than among women, according to a recent study where the number one cause of death for men under 50 is suicide (Office for National Statistics, 2017).

Our study indicated that young adults possess more well-being than middle adults. Apart from that, there are no significant differences between young and middle adults regarding psychological distress and depression. However, findings showed that young adults possessed more suicidal ideation than middle adults in the pandemic situation. These days, young folks are more frequently experiencing increased suicidal ideation. According to several kinds of research, young adults, who are often described as people in

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their late teens to early 20s, have higher rates of suicidal ideation than middle-aged adults, who are usually in their 30s to 50s (Hawton et al., 2012 & Rhodes et al., 2014). Several transitional obstacles, including scholastic stress, peer pressure, identity development, and interpersonal issues, frequently accompany young adulthood (Joiner et al., 2009). They may have developed mental health concerns due to a sudden lockdown, a gap in their education, or a lack of peer support, all of which contribute to increased suicidal ideation among young adults during the pandemic.

The findings of data analysis also reported that highly educated people possess higher levels of well-being and lower level of depression compared the people with lower levels of education. No statistically significant difference has been found between these two population groups regarding depression and suicidal ideation. Education is often associated with improved cognitive and emotional skills, which can help individuals navigate life's challenges and enhance their overall well-being. Higher-educated individuals report higher levels of life satisfaction, possibly due to the personal growth opportunities and increased resources that education provides (Diener & Biswas, 2002). These findings suggest that investing in higher education can positively affect individuals' happiness and life satisfaction (Suh et al., 1998).

Current research also investigated the association between well-being, distress, suicidal ideation, and depression in terms of socio-economic status. The level of wellbeing psychological distress and depression significantly vary according to socio-economic status according to the findings of the study. On the other hand, suicidal ideation does not vary across to socio-economic status as per study findings. This finding is in the line with Lorent, et al., (2002) and Nock et al., (2008) where they found that low socio-economic status (SES) is mostly associated with more disability and high psychiatric morbidity (Lorent V. et al., 2002). People from higher classes have enough resources to deal with life

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stress, whereas people from lower economic classes struggle to deal with life stress. Financial stress, health issues, poor education, poor lifestyle, relationship crises etc., can cause a high level of distress in people with lower economic status. Furthermore, some factors like deprecated experiences, poor social support, employment status, functional disability, critical life events, and economic hardship are strongly and unconventionally related to mental health symptoms like distress and depression (Molarius et al., 2009). There are so many studies also supported that suicidal ideation vary according to socio-economic status where lower socio-economic status causes increased risk of suicidal ideation (Nock et al., 2008). However, the current study did not find any significant association between suicidal ideation and socio-economic status. The COVID-19 epidemic has caused global economic instability, unemployment, social isolation, and limited access to resources and support networks. These factors can affect socioeconomic status and suicidal ideation. During the outbreak, financially sound people may have endured sudden financial troubles, while those with socioeconomic challenges may have faced even greater difficulties. Complex dynamics can affect mental health, including suicidal ideation. Understanding this link requires a pandemic-specific study. Socioeconomic determinants, pandemic stressors, healthcare and support services, and mental health outcomes may be examined.

Our third objective was to investigate the influence of several variables (participant's status, gender, age, having co-morbid diseases, types of co-morbid diseases, wellbeing, and depression) on suicidal ideation. Binary logistic regression has been performed to identify the influence of several variables on the probability of developing suicidal ideation, leading to the conclusion that seven independent variables made a statistically significant contribution to the likelihood of developing suicidal ideation in the pandemic situation. The strongest predictor of reporting suicidal ideation was the

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participant's status (COVID-infected or COVID-non-infected). The findings indicate that

respondents whom COVID has not infected are 2.95 times more likely to report suicidal

ideation than those who have been infected by COVID, controlling for all other factors in

the model. This finding is in the life with Conjero et al., (2021) where they found that

being infected by COVID can create a weighty environment contributing directly to

increased suicide risk because patients infected with COVID-19 have high amounts of

IP10, IL-1β, and IFN-γ, MCP1, which may lead to increased inflammation. Inflammation

can induce depressive symptoms related to suicidal behaviour and impaired immune

system control in suicidal patients (Conjero et al., 2021). Despite these medical findings, it

has been found that people without COVID infection reflected more proneness toward

developing suicidal ideation (SI). Therefore, other socio demographical can be explored to

understand these phenomena. Farooq and his colleagues have spotted that poorer self-

reported physical health in frontline medical workers, quarantine and exhaustion due to

sleep disturbances, and loneliness are the main factors of increasing suicidal ideation (SI)

identified in this pandemic (Farooq et al., 2021). Therefore, it can be strongly assumed

that socio-demographical factors play an essential role in forming suicidal ideation (SI)

among general people in this pandemic situation.

In addition, we found that after controlling for other variables in the model,

respondents were .405 times less likely to experience suicidal ideation if they were

young. This finding is consistent with the finding of Lu et al., (2020) where they found

that the incidence of suicidal ideation (SI) was highest among young people, according to

studies among Malaysians aged 15 to 25 in particular urban areas.

By controlling for other factors in the model, binary logistic regression analysis

also revealed that men were .558 times less likely than women to experience suicidal

ideation. A fascinating finding from a study on seniors in rural China is that women over

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65 are more likely than men to have suicidal ideation (SI) (Lu et al., 2020). In light of this,

we may make significant predictions of suicidal ideation (SI) using gender type and age

group. According to the odds ratio (.344), people are less likely to have suicidal thoughts

if they do not have other co-morbid diseases. Considering other variables in the model, the

odds ratio for well-being was 1.077, meaning respondents who reported feeling unwell

were 1.077 times more likely to experience suicidal ideation. Mental health conditions like

feeling unwell or distressed are known risk factors for suicidal ideation, as evidenced by

numerous studies. Low levels of well-being are linked to an increased risk of suicide

ideation and behavior, along with other elements like sadness, hopelessness, and social

isolation. It has been discovered that higher symptom intensity, including suicide ideation,

was related to poorer levels of well-being (Teismann et al., 2018). After accounting for all

other variables in the model, the odds ratio for depression was 1.078, meaning that

respondents with depression were 1.078 times more likely to experience suicidal ideation.

Depression is a persistent state of mind that negatively effects on how we think, how we

feel, and how we act. Clinical depression is a mood condition in which feelings of sadness,

anger, loss, and hopelessness interfere with everyday functioning for at least two weeks.

(Zieve & Merrill 2011). A regression analysis of a study on 265 students of Tehran

revealed that depression had the most contribution to predicting suicidal ideation (SI)

(Izadinia et al., 2010).

Our fourth objective was to investigate the association among wellbeing,

psychological distress, depression, and suicidal ideation in COVID-19 pandemic. We

found an interrelation between psychological factors and suicidal ideation. This finding is

necessarily aligned with the previous finding of the current research where COVID non-

infected people reflect suicidal ideation (SI) more than COVID-infected people. More

suicidal ideation (SI) among COVID non-infected people causes more psychological

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vulnerability that has been reflected through these associations of this group. Research on

the high school students of Indonesia reveals that psychological well-being is contrarily

correlated with suicidal ideation (SI) (Takwin and Atmini, 2018). Awata and colleagues

(2007) also showed that subjects with suicidal ideation (SI) scored remarkably lower

(45.6) on the WHO-5 than subjects without suicidal ideation (SI) (67.6) (Awata et al.,

2007). These findings also support that poor well-being leads to suicidality. Therefore,

nationwide preventive action needs to focus on decreasing the incidents of suicide by

addressing lower levels of well-being. However, the level of distress is significantly

associated with suicidal ideation in the same population. Identical results have also been

found for COVID participants that well-being was not associated with suicidal ideation;

conversely, the level of distress was significantly associated with suicidal ideation (SI).

This is very common that psychological distress and suicidal ideation (SI) are significantly

associated with each other, which has also been identified by so much research. Suicidal

ideation (SI) was reported by 15% of cancer patients; among those 24.8% are clinically

distressed (Senf et al., 2021). Another study showed that patients of general physicians

whose age ranges from 15 to 24 years old hold proportionately high levels of

psychological distress and suicidal ideation (SI) (McKelvy et al., 1998). Young adults with

psychological distress and suffering from physical illness enormously suffer from suicidal

ideation (SI). University students in China also suffer from psychological distress and

suicidal behavior simultaneously, where psychological distress is highly linked with

suicidal manner (Tang et al., 2018). Therefore, we can infer that psychological distress is a

significant indicator of detecting suicidal ideation (SI) among the general population.

A very significant finding has been found in the study that well-being had not

detected the suicidal ideation (SI), not even associated with suicidal ideation for the

COVID infected and total number population. Ironically, we did not get any research

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supporting this finding. Social desirability bias can explain the reason of this outcome where respondents tend to respond to the item on the scale in a manner that will be viewed favorably by others. Therefore, well-being should be strongly associated with hopelessness by predicting suicidal ideation (SI). However, our current finding is not generalizable to the total population of our country. Therefore, we are recommending that we should explore more to discover the generalizable connection between suicidal ideation and psychological well-being in the context of Bangladesh especially on COVID infected participants.

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Chapter 5

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Limitations

This study had several limitations. The information was self-reported, and it was impossible to validate the data due to its cross-sectional design. Since the study was cross-sectional, it is impossible to determine the causal links between psychological distress, depression, and suicidal ideation. This study has not estimated individual differences between research participants and non-participants. This study, following the Cross-sectional design, lacks information on the sequence of developing suicidal ideation in the pandemic situation, making it difficult to determine the order in which depression and distress form along with suicidal ideation occurred.

A large number of people with corona symptoms who did not undergo testing were eliminated, and the impoverished community was not prioritized as a sample population to avoid erroneous findings.

Another significant limitation in this study is that the data collected online and through face-to-face interactions was not separately entered into SPSS. Therefore, it is still being determined if the results of the two types of research can be compared.

In the study, well-being was not connected with suicidal ideation (SI) for the COVID-infected or total population.

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Chapter 6

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Conclusion

In Bangladesh, the study has started investigating the differences in suicidal thoughts between COVID infected and COVID non-infected populations. The study's conclusions may greatly influence the creation of suicide prevention plans in the post-COVID era. Finding the socio-demographic characteristics, examining how socio-demographic and psychological factors affect suicidal ideation, and calculating the relationship between happiness, psychological distress, depression, and suicidal ideation during the COVID-19 pandemic.

Suicidal ideation was more prevalent among COVID non-infected subjects. Male participants are more likely to kill themselves than female subjects. More young adults (18–35 years old) have suicidal thoughts than older people (35–50 years old). Unemployed people and students are more likely to think about killing themselves. Furthermore, married, separated, or divorced people are more likely to think about killing themselves. It was also found that highly educated people possess higher levels of well-being and lower level of depression compared the people with lower levels of education.

The demographic factors such as gender, age, occupation, marital status, level of education, economic status, and having co-morbid diseases play in the emergence of suicidal ideation during a pandemic.

It was discovered that COVID-infected participants had a lower quality of life than COVID-negative participants. However, the distress levels of both categories are comparable. The median depression score for both groups indicates that COVID-infected people are more depressed than COVID-negative people.

It was also discovered that COVID-infected individuals experience depressive symptoms and have a low psychological well-being. The strongest predictor of reporting suicidal ideation was the participant's status (COVID-infected or COVID-non-infected),

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gender, age, having comorbid diseases, level of wellbeing and depression in the current research**.** Finally found that the total number of participants' suicidal ideation (SI) and psychological characteristics were related. Participants who were infected with COVID experienced the same outcomes. However, neither the whole population of this study nor those who were COVID-infected showed a relationship between well-being and suicide ideation. Suicidal ideation (SI) in individuals without COVID significantly correlates with psychological distress and overall well-being.

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Chapter 7

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Implications

The findings of this study have significant significance for healthcare professionals and policymakers in addressing the COVID-19 pandemic's effects on mental health. This research paves the way for the development of preventative measures to reduce suicide in the context of Bangladesh in the post-COVID era, particularly among young men, as this cohort was found to be more susceptible to suicidal thinking. The theoretical implications of this research will be constructing new ideas for assessing suicidal ideation in Bangladesh by estimating the socio-demographic factors and psychological components. The results will aid in understanding the mental health vulnerabilities that can cause the emergence of suicidal thoughts in a pandemic event.

The results of the current investigation do not agree with several earlier studies. As a result, the study can be repeated while considering its limitations to confirm the current findings of this research. In addition, the study may be repeated on marginalized or underprivileged groups to obtain conclusions generalized to Bangladesh because the data from these populations had to be enough. Another point must be considered that the well-being measure's performance (sensitivity and specificity) in Bangladesh should be reevaluated to determine why there was no association between the scale and suicidal ideation (SI) in COVID-infected subjects.

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Chapter 8

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Chapter 9

Suicidal ideation and associated factors in COVID-19 pandemic

Appendices

চিকিৎসা মনোবিজ্ঞান বিভাগ
ঢাকা বিশ্ববিদ্যালয়
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Date: August 22, 2022

Certificate of Ethical Approval

Project Number : **MP220301**

Project Title : **Suicidal ideation and associated factors among COVID-19 infected and non infected people**

Investigators : **Shamanta Islam** and **Kamal Uddin Ahmed Chowdhury**

Approval Period : **22 March 2022** to **21 March 2024**

Terms of Approval

1. Any changes made to the details submitted for ethical approval should be notified and sought approval by the investigator(s) to the Department of Clinical Psychology Ethics Committee before incorporating the change.

2. The investigator(s) should inform the committee immediately in case of occurrence of any adverse unexpected events that hampers wellbeing of the participants or affect the ethical acceptability of the research.

3. The research project is subject to monitoring or audit by the Department of Clinical Psychology Ethics Committee.

4. The committee can cancel approval if ethical conduct of the research is found to be compromised.

5. If the research cannot be completed within the approved period, the investigator must submit application for an extension.

6. The investigator must submit a research completion report.

Chairperson
Ethics Committee
Department of Clinical Psychology
University of Dhaka

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Appendix A: Certificate of Ethical Approval

গবেষণা সহযোগীর জন্য তথ্য সংগ্রহের গাইডলাইন

গবেষণায় অংশগ্রহণকারী কে শুভেচ্ছা জানিয়ে সালাম বা আদাব (যে ধরণের সম্ভাষণ প্রযোজ্য) দিয়ে নিজের পরিচয় দিন। এপর্যায়ে অংশগ্রহণকারীর কাছ থেকে অনুমতি নিয়ে গবেষণার বিষয়ে বলুন। কথাগুলো এভাবে বলা যেতে পারে যে, *"আমি ঢাকা বিশ্ববিদ্যালয়ের চিকিৎসা মনোবিজ্ঞান বিভাগের অধীনে এম. ফিল. পর্যায়ের করোনা মহামারীতে মানসিক স্বাস্থ্য এবং আত্মহত্যার প্রবনতা বিষয়ে একটি গবেষণায় গবেষণা সহযোগী হিসেবে কাজ করছি। গবেষণায় কিছু তথ্য দিয়ে সহায়তা করার জন্য আপনার মূল্যবান সময় ও সহযোগিতা কামনা করছি।"* এরপর অংশগ্রহণকারীর অনুমতি নিয়ে সম্মতি পত্রটি পড়তে অনুরোধ করুন। সম্মতি পত্র পড়ার পর অংশগ্রহণকারী যদি গবেষণায় তথ্য দিতে আগ্রহ প্রকাশ করেন তাহলে সম্মতিপত্রে নিজের স্বাক্ষর দিতে অনুরোধ করুন। এরপর সরবরাহকৃত স্কেলগুলো পূরণ করতে বলুন এবং স্কেলের কোন আইটেম বুঝতে অসুবিধা হলে অংশগ্রহণকারীকে বুঝিয়ে দিন। স্কেলসমূহ পূরণ করা হলে আত্মহত্যার প্রবনতা পরিমাপক স্কেলটির তাৎক্ষনিকভাবে স্কোরিং করে দেখুন যে অংশগ্রহণকারীর মধ্যে আত্মহত্যার প্রবনতা আছে কি না। যদি আত্মহত্যার প্রবনতা থাকে তাহলে অবশ্যই সরবরাহকৃত ফোন নাম্বার দিয়ে মানসিক স্বাস্থ্য সেবা নিতে অনুরোধ করুন। সবশেষে, গবেষণায় তথ্য দিয়ে অংশ নেয়ার জন্য ধন্যবাদ জানিয়ে অংশগ্রহণকারীর কাছ থেকে বিদায় নিন।

Suicidal ideation and associated factors in COVID-19 pandemic

Appendix B: Guidelines for Research Assistants

<div align="center">

সম্মতিপত্র (Consent Form)

</div>

আমি শামান্তা ইসলাম, ঢাকা বিশ্ববিদ্যালয়ে চিকিৎসা মনোবিজ্ঞান বিভাগের একজন এম.ফিল. গবেষক। আমার এম.ফিল. গবেষণার অংশ হিসেবে "Suicidal ideation and associated factors among COVID-19 infected and non-infected people" এই শিরোনামে একটি গবেষণা কার্য পরিচালনা করছি। উক্ত গবেষণায় আপনার মূল্যবান তথ্য একান্ত প্রয়োজন। আপনাকে আশ্বস্ত করছি যে, আপনার দেয়া সমস্ত তথ্য গোপন থাকবে এবং এই গবেষণা ব্যতিত অন্য কোথাও ব্যবহার করা হবে না। আপনি যদি আপনার মূল্যবান উপাত্ত দিতে সম্মত হয়ে থাকেন তাহলে অনুগ্রহ করে নিচে আজকের তারিখ সহ আপনার স্বাক্ষর দিন। ধন্যবাদ।

নামঃ

তারিখঃ

<div align="right">

শামান্তা ইসলাম

এম.ফিল. গবেষক

চিকিৎসা মনোবিজ্ঞান বিভাগ

ঢাকা বিশ্ববিদ্যালয়

</div>

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Appendix C1: Consent form

<div align="center">ব্যক্তিগত তথ্য (অংশগ্রহণকারী)</div>

COVID ☐

Non COVID ☐

লিঙ্গ:

বয়স:

পেশা:

শিক্ষাগত যোগ্যতা: উচ্চ মাধ্যমিক এবং এর নিচে ☐   স্নাতক এবং তদূর্ধ্ব ☐

আর্থ-সামাজিক অবস্থা: উচ্চবিত্ত ☐   মধ্যবিত্ত ☐   নিম্নবিত্ত ☐

বৈবাহিক অবস্থা: বিবাহিত ☐   অবিবাহিত ☐   তালাকপ্রাপ্ত ☐   বিধবা/বিপত্নিক ☐

বাসস্থানের ধরণ: শহর ☐   পল্লীঅঞ্চল ☐

পরিবারের সদস্য সংখ্যা:

পরিবারের কেউ কি করোনা আক্রান্ত হয়েছিলেন? হ্যাঁ ☐   না ☐

পরিবার বা নিকট আত্মীয়দের মধ্যে কেউ কি করোনায় আক্রান্ত হয়ে মৃত্যুবরণ করেছেন? হ্যাঁ ☐   না ☐

যদি হ্যাঁ হয় তাহলে ঐ ব্যক্তির সাথে আপনার সম্পর্ক কি?

করোনা আক্রান্ড় হয়ে কি আপনি হাসপাতালে ভর্তি ছিলেন? হ্যাঁ ☐   না ☐

আপনার কি কোন কো-মরবিড শারীরিক অসুস্থতা আছে? হ্যাঁ ☐   না ☐

যদি হ্যাঁ হয় তাহলে নিচের কোন ধরণের অসুস্থতা আছে?

ডায়বেটিস ☐   ব্লাডপ্রেশার ☐   অ্যাজমা ☐   ঘুমের সমস্যা ☐

আপনি কি কখনো মনোচিকিৎসকের (সাইকিয়াট্রিস্ট) শরণাপন্ন হয়েছেন? হ্যাঁ ☐   না ☐

যদি হ্যাঁ হয় তাহলে আপনার ডায়াগনোসিস কি ছিল?

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Appendix C2: Demographic Information Sheet

WHO (Five) Well-Being Index (1988 version)

গত দুই সপ্তাহ ধরে আপনি কেমন অনুভব করছেন তা পাঁচটি বিবৃতির মধ্যে যেটি আপনার অনুভূতির সবচেয়ে কাছাকাছি যায়, দয়া করে সেটি নির্দেশ করুন। লক্ষ করুন যে,নম্বর যত বেশি হবে তত বেশি ভাল থাকা নির্দেশ করে।

উদাহরণস্বরূপঃ গত দুই সপ্তাহ ধরে আপনি যদি অর্ধেকের বেশি সময় উৎফুল্ল এবং উৎসাহিতবোধ করে থাকেন, তাহলে ০ লেখা ঘরে টিক চিহ্ন দিন।

	গত দুই সপ্তাহে	সবসময়	বেশিরভাগ সময়	অর্ধেকের বেশি সময়	অর্ধেকের কম সময়	মাঝে মাঝে	কখনোই না
১	আমি উৎফুল্ল এবং উৎসাহিতবোধ করেছি	☐৫	☐৪	☐৩	☐২	☐১	☐০
২	আমি শান্ত এবং হালকা বোধ করেছি	☐৫	☐৪	☐৩	☐২	☐১	☐০
৩	আমি কর্মক্ষম এবং সজীব অনুভব করেছি	☐৫	☐৪	☐৩	☐২	☐১	☐০
৪	সতেজ এবং আরামের অনুভূতি নিয়ে আমি ঘুম থেকে জেগে উঠেছি	☐৫	☐৪	☐৩	☐২	☐১	☐০
৫	আমি যা কিছু পছন্দ করি তা দিয়ে আমার দৈনন্দিন জীবন পূর্ণ রয়েছে	☐৫	☐৪	☐৩	☐২	☐১	☐০

স্কোরিংঃপ্রাপ্ত স্কোরকে ৪ দ্বারা গুণ করলে যে স্কোর পাওয়া যাবে তার ভিত্তিতে ওয়েল-বিয়িং পরিমাপ করা যাবে। ৫০% এর কম হলে সেটি কম ওয়েল-বিয়িং নির্ধারণ করে। অপরদিকে ৫০% বা তার অধিক স্কোরিং বেশি ওয়েল-বিয়িং নির্দেশ করে।

Suggested citation: Faruk, O. M., Alam, F., Chowdhury, K. U. A., & Soron, T. R. (2021). Validation of the Bangla WHO-5 Well-being Index. Global Mental Health, 8, E26. doi:10.1017/gmh.2021.26

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Appendix D: WHO-5 Wellbeing Index

গোল্ড বার্গের মানসিক স্বাস্থ্য বিষয়ক প্রশ্নমালা

নিম্নের প্রশ্নগুলি আপনার মানসিক অবস্থা বা অনুভূতির সাথে সম্পর্কিত। প্রতিটি প্রশ্নের জন্য চারটি সম্ভাব্য উত্তর ১) মোটেই না ২) কিছুটা৩) বেশ খানিকটা ৪) সর্বাধিক পরিমাণ

দেয়া আছে। অনুগ্রহ করে আপনি প্রতিটি প্রশ্নের সাথে প্রদত্ত চার ধরনের উত্তরের যেটির সাথে একমত তার উপর টিক(✔) চিহ্ন দিন।

	প্রশ্ন	১ মোটেই না	২ কিছু টা	৩ বেশ খানিক টা	৪ সর্বাধিক পরিমাণে
১	ইদানিং আপনি যা করছেন তাতে কি মোটেই মনোনিবেশ করতে পারছেন?				
২	অত্যন্ত দুশ্চিন্তা আপনার নিদ্রায় ব্যাঘাত করে কি?				
৩	আপনি আজকাল আপনার প্রয়োজনীয় কাজে মনোযোগ দিতে পারেন কি?				
৪	আপনি বর্তমানে কোন কিছু সম্পর্কে সিদ্ধান্ত গ্রহন করতে সমর্থ কি না?				
৫	আপনি সর্বদা মানসিক পীড়নে ভোগেন কি না?				
৬	ইদানিং আপনি কি মনে করেন যে, বাধাগুলো দূর করতে আপনি সক্ষম হচ্ছেন না?				
৭	আপনার দৈনন্দিন সাধারন কাজগুলো উপভোগ করতে সক্ষম কি না?				
৮	আপনি ইদানিং আপনার সমস্যাগুলোর মোকাবেলা করতে সক্ষম?				
৯	আপনি কি ইদানিং অসুখী ও বিমর্ষ বোধ করেন?				
১০	বর্তমানে আপনি কি আত্মবিশ্বাস হারিয়ে ফেলেছেন বলে মনে করেন?				
১১	ইদানিং আপনি নিজেকে একজন মূল্যহীন ব্যক্তি হিসেবে গণ্য করেন কি?				
১২	সমস্ত কিছু বিবেচনা করে বর্তমানে আপনি নিজেকে মোটামোটি সুখী মনে করেন কি?				

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Appendix E: General Health Questionnaire (GHQ-12)

Hopelessness Scale (Beck)

এই প্রশ্নপত্রে ২০টি উক্তি/বাক্য আছে। আপনি প্রতিটি বাক্য সতর্কতার সাথে পড়ুন। বাক্যগুলির যেটি আপনার মনের অবস্থাকে (আজকের দিন থেকে শুরু করে গত এক সপ্তাহে) সঠিক ভাবে তুলে ধরে তবে "সত্য" এর উপর টিক (√) চিহ্ন দিন। ঠিক একই ভাবে যে বাক্যটি আপনার মনের অবস্থার সাথে মিলছে না তবে "মিথ্যা" এর উপর টিক (√) চিহ্ন দিন। সবশেষে প্রতিটি বাক্য ঠিকমতো পড়া হয়েছে কি না তা দেখে নিন।

১.	আমি আশা এবং উৎসাহ নিয়ে ভবিষ্যতের অপেক্ষায় আছি।	সত্য	মিথ্যা
২.	আমি সব আশা ছেড়ে দিয়েছি কারণ নিজের ভাল কোন কিছু করার জন্য আমার আর কিছুই করার নেই।	সত্য	মিথ্যা
৩.	যখন খারাপ সময়ের ভিতর দিয়ে যাই, তখন আমি বুঝতে পারি যে সময় সবসময় খারাপ যাবে না	সত্য	মিথ্যা
৪.	দশ বছর পর আমার জীবন কেমন হবে তা আমি কল্পনাও করতে পারি না।	সত্য	মিথ্যা
৫.	আমি যেসব কাজ খুব বেশী করতে চাই, তা শেষ করার মত যথেষ্ট সময় আমার আছে।	সত্য	মিথ্যা
৬.	যেসব বিষয়/কাজ নিয়ে আমি উদ্বিগ্ন থাকি আমি আশা করি যে ভবিষ্যতে আমি সেসব বিষয়ে সফল হব।	সত্য	মিথ্যা
৭.	আমার মনে হয় আমার ভবিষ্যত অন্ধকারাচ্ছন্ন।	সত্য	মিথ্যা
৮.	আমি সাধারণভাবে একজন ভাগ্যবান এবং জীবনের ভাল জিনিসগুলোর অধিকাংশই একজন সাধারণ মানুষ অপেক্ষা বেশী পাওয়ার আশা করি।	সত্য	মিথ্যা
৯.	আমি বিশ্রাম নেয়ার কোন সুযোগই পাইনা আর ভবিষ্যতে যে পাব তা বিশ্বাস করার মত কোন কারণও নেই।	সত্য	মিথ্যা
১০.	অতীত অভিজ্ঞতা গুলো আমাকে ভবিষ্যতের জন্য সুন্দরভাবে তৈরী করে দিয়েছে।	সত্য	মিথ্যা
১১.	আমি আমার সামনে আনন্দের পরিবর্তে শুধু নিরানন্দ দেখি।	সত্য	মিথ্যা
১২.	যা আমি পেতে চাই তা পাওয়ার কোন আশা আমার নাই।	সত্য	মিথ্যা
১৩.	আমি আশা করি ভবিষ্যতে আমি বর্তমান অবস্থার চেয়ে বেশী সুখে থাকবো।	সত্য	মিথ্যা
১৪.	আমি যে ভাবে চাই, কোন কিছুই সেভাবে হয় না।	সত্য	মিথ্যা
১৫.	ভবিষ্যত সম্পর্কে আমি বেশ আস্থাশীল।	সত্য	মিথ্যা
১৬.	যা আমি চাই তা কখনোই পাই না, তাই নিজের জন্য চাওয়াটা বোকামী।	সত্য	মিথ্যা
১৭.	ভবিষ্যতে আমার প্রকৃতই সুখি/তৃপ্ত হবার (অর্থাৎ আমি প্রকৃতপক্ষে সন্তুষ্ট থাকব) সম্ভাবনা খুবই কম।	সত্য	মিথ্যা
১৮.	ভবিষ্যত আমার কাছে অস্পষ্ট এবং অনির্দিষ্ট।	সত্য	মিথ্যা
১৯.	আমি খারাপ সময়ের চাইতে ভাল সময়ের জন্য বেশী অপেক্ষা করবো।	সত্য	মিথ্যা
২০.	কোন কিছু পাওয়ার জন্য চেষ্টা করার কোন মানে হয় না, কারণ সম্ভবতঃ সেটা পাওয়া যাবে না।	সত্য	মিথ্যা

Total : [   ]

0-3 = None or minimal; 4-8 = Mild; 9-14 = Moderate. (May not be in immediate danger but requires frequent regular monitoring .Is the life situation stable.); 15 + = Severe (Definite suicidal risk)

Suicidal ideation and associated factors in COVID-19 pandemic

Appendix F: Beck Hopelessness Scale

<div align="center">

বিষণ্নতা পরিমাপক

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নিচের বিবৃতি গুলো পড়ে গত এক সপ্তাহের মধ্যে এই বিবৃতি গুলো আপনার ক্ষেত্রে কতটা প্রযোজ্য তা বিবৃতির পার্শ্বের সম্ভাব্য পাঁচটি উত্তরের যেটি প্রযোজ্য সেটির ঘরে টিক(√) চিহ্ন দিয়ে নির্দেশ করুন। আপনাকে সম্ভাব্য এই পাঁচটি উত্তর থেকে যে কোন একটিকে বেছে নিতে হবে এবং সবগুলো প্রশ্নের উত্তর দিতে হবে। অনুগ্রহ করে লক্ষ্য করুন সবগুলো বিবৃতির উত্তর দিয়েছেন কি না।

বিবৃতিসমূহ	একেবারেই প্রযোজ্য নয়	প্রযোজ্য নয়	মাঝামাঝি	কিছুটা প্রযোজ্য	পুরোপুরি প্রযোজ্য
১. আমার অশান্তি লাগে।					
২. ইদানিং আমি মনমরা থাকি।					
৩. আমার ভবিষ্যত অন্ধকার।					
৪. ভবিষ্যতে আমার অবস্থা দিন দিন আরো খারাপ হবে।					
৫. আমার সব শেষ হয়ে গেছে।					
৬. আমি মনে করি যে, জীবনটা বর্তমানে খুব বেশী কষ্টকর।					
৭. বর্তমানে আমি অনুভব করি যে মানুষ হিসাবে আমি সম্পূর্ণ ব্যর্থ					
৮. আমি কোথাও আনন্দ-ফূর্তি পাই না।					
৯. নিজেকে খুব ছোট মনে হয়।					
১০. সবকিছুতে আমার আত্মবিশ্বাস কমে গেছে।					
১১. আমার মনে হয় মানুষ আমাকে করুণা করে।					
১২. জীবনটা অর্থহীন।					
১৩. প্রায়ই আমার কান্না পায়।					
১৪. আমি প্রায়ই বিরক্ত বোধ করি।					
১৫. আমি কোন কিছুতেই আগ্রহ পাই না।					
১৬. আমি ইদানিং চিন্তা করতে ও সিদ্ধান্ত নিতে পারি না।					
১৭. আমি আজকাল অনেক কিছুতেই মনোযোগ দিতে পারি না।					
১৮. আমি আগের মতো মনে রাখতে পারি না।					
১৯. আমি দুর্বল বোধ করি এবং অল্পতেই ক্লান্ত হয়ে পড়ি।					
২০. আমি এখন কম ঘুমাই।					
২১. আমি এখন বেশী ঘুমাই।					
২২. আমার মেজাজ খিটখিটে হয়ে গেছে।					
২৩. আমার ক্ষুধা কমে গেছে।					
২৪. আমার ক্ষুধা বেড়ে গেছে।					
২৫. আমার ওজন কমে গেছে (ইচ্ছাকৃতভাবে ওজন নিয়ন্ত্রণের চেষ্টা করার ফলে নয়)।					
২৬. আমার মনে হয় যে আমার কাজকর্মের গতি কমে গেছে।					
২৭. হাসির কোন ঘটনা ঘটলেও আমি আর হাসতে পারি না।					
২৮. যৌন বিষয়ে আমার আগ্রহ কমে গেছে।					
২৯. সামাজিক কাজকর্মে আগের মতো অংশগ্রহণ করতে পারি না।					
৩০. শিক্ষা বা পেশাগত কাজকর্ম আগের মতো করতে পারি না।					

Total: [ ]

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Scoring:

94+ = Depressed;

30-100 = Minimal;

101-114 = Mild;

115-123 = Moderate;

124-150 = Severe

Appendix G: Depression scale

Suicidal ideation and associated factors in COVID-19 pandemic

The End