Potential Factors Contributing to Mental Health Challenges among Young People during the COVID-19 Pandemic in Dhaka, Bangladesh

Qasim Misbah

University of Lahore, Pakistan
* Correspondence: ishaqmishaq288@gmail.com

Abstract: In this manuscript, we perform a Chi-square association test to determine whether there is an association between the quarrelsome environment in the residence and mental health challenges during the COVID-19 pandemic. The analysis revealed a statistically significant association, with a corresponding p-value of 0.011. Furthermore, a logistic regression model was employed to identify factors influencing mental health challenges during the pandemic. The model showed that age, frequency of leaving home during the past 14 days, effectiveness of work-from-home or online classes, and individual feelings in response to COVID-19 are significant factors affecting the odds of facing mental health challenges.

1. Introduction

With the outbreak of the novel coronavirus (2019-nCoV), the World Health Organization (WHO) declared the disease a pandemic and an international public health emergency. COVID-19 is a rapidly evolving global health crisis. In less than nine months after the virus first emerged in December 2019, nearly thirty million people around the world were infected, and approximately 939,000 deaths were recorded. Researchers and scientists continue to investigate the genomic structure and epidemiology of the virus. As there are no approved vaccines or antiviral drugs available during the early phase of the outbreak, preventive measures such as social distancing, self-isolation, quarantine, international travel bans, and lockdowns were implemented to reduce transmission rates and flatten the infection curve.

These preventive measures, while essential, created numerous challenges for daily life and mental health across societies. Social isolation and reduced social interaction significantly affected psychological well-being, leading to widespread anxiety, fear, and emotional distress. Dhaka, the capital city of Bangladesh, has one of the highest population densities in the world, with nearly 21 million inhabitants, making adherence to preventive measures such as social distancing extremely difficult. Consequently, residents experienced increased psychological stress while struggling to comply with lockdown restrictions and other control measures.

The mental health challenges resulting from the pandemic are well-documented globally. Psychological factors play a crucial role in influencing public responses to crises, and prolonged exposure to stressful situations can lead to depression, anxiety, and emotional instability. Moreover, patients infected with COVID-19 have faced not only physical complications, such as severe respiratory symptoms and cardiovascular damage, but also psychological suffering [2].

Pandemic-related conditions such as lockdowns, quarantines, and social isolation can intensify feelings of sadness, anger, and frustration [1]. In Bangladesh, where socioeconomic instability and dense urban living conditions prevail, these factors have further amplified the public's mental health burden. Therefore, it is essential to examine how household environments—particularly quarrelsome or stressful domestic situations—contribute to the prevalence of mental health challenges during the COVID-19 pandemic.

The first confirmed case of COVID-19 in Bangladesh was reported on March 8, 2020, though experts speculated that the virus may have entered the country earlier but remained undetected due to limited testing capacity. Following

the detection of initial cases, the government implemented several emergency measures including school closures, international flight suspensions, and nationwide lockdowns [3]. On March 26, Bangladesh declared a general holiday that effectively shut down most public and private offices.

During this period, healthcare systems came under immense strain. Medical and nursing staff faced unprecedented workloads, inadequate protective equipment, and increased exposure risk. Reports emerged of mental exhaustion, anxiety, and depression among frontline workers [4]. The Dhaka Medical College and Hospital, one of the largest hospitals in the country, had to quarantine several healthcare workers after exposure to COVID-19-positive patients. The lack of adequate protective personal equipment (PPE) intensified fear and distress among hospital staff [5].

The mental health crisis extended beyond medical professionals to students and the general population. Many university students in Dhaka returned to rural areas due to campus closures and financial constraints. Students from low-income families struggled to access remote learning resources because of poor internet connectivity, contributing to educational disruption and psychological distress. According to the current survey, approximately 58.5% of respondents agreed that maintaining social distancing has negatively affected their interpersonal relationships and mental well-being.

Additionally, the pandemic severely impacted employment and economic security. Part-time tutoring—an essential source of income for many students—became scarce, while new graduates faced uncertainty regarding job opportunities and future career stability. These challenges have exacerbated anxiety, depression, and fear among young adults [6]. Reports have shown that prolonged social isolation, limited access to support systems, and persistent uncertainty have contributed to rising mental health issues among both employed and unemployed youth.

During the pandemic, many government and non-government organizations temporarily suspended operations, leaving the public with fewer sources of social and financial support. Job seekers and recent graduates faced exceptional challenges as the job market shrank significantly. Students expressed concern over losing valuable academic time, leading to delayed graduation and increased stress. In rural and urban households alike, economic instability has become a major factor contributing to mental health deterioration [7].

Globally, the psychological impact of the pandemic has been profound. Studies have linked lockdown-related isolation and uncertainty to higher rates of anxiety, stress, and suicidal behavior [8,9]. In Bangladesh, several cases of suicide have been reported, often related to financial hardship or social distress during the lockdown. These findings highlight the urgent need for mental health support systems that are accessible, affordable, and capable of addressing the unique challenges faced by different population groups during and after the COVID-19 crisis.

2. Materials and Methods

Data for this study were collected through Google Forms from respondents currently residing in Dhaka, Bangladesh. The population was divided into three age sub-groups: under 16, 16–61, and above 61 years. Since individuals younger than 16 or older than 61 were less likely to use the internet, the main focus was on respondents aged 16–61, who comprised the majority of active online users.

The target population consisted of young people (aged 16–61) who were more likely to experience mental health challenges compared to older adults, particularly due to university closures, job losses, and economic hardship during the COVID-19 lockdown. Data were collected using a structured online questionnaire distributed through social media networks. Participants were invited to voluntarily complete the survey, which included demographic details, socioeconomic background, and behavioral information related to COVID-19 preventive practices.

The questionnaire covered information such as:

- Demographic details (age, gender, marital status, occupation, income)
- Internet usage before and during lockdown
- Frequency of handwashing and leaving home in the past 14 days
- Perceptions of social distancing and home environment

A total of 250 responses were collected, of which 61.6% were male and 38.4% were female. Among the respondents, 59.4% were students, 25.1% were employed, and 16.6% were unemployed. The age distribution showed that 13.3% were between 18–27 years, 36.3% between 28–48 years, and 23.9% between 49–61 years, with a mean age of 25.13 years.

The study also recorded the type of housing and living arrangements, revealing that 6.4% of participants stayed in company-provided housing, while 42.8% lived in rental apartments. Respondents who reported frequent quarrels in their household during the lockdown period were also more likely to report mental health challenges.

A binary logistic regression model was applied to assess whether respondents experienced mental health challenges during the COVID-19 outbreak. Additionally, a Chi-square test was performed to examine the relationship between

quarrelsome home environments and mental health status. All statistical analyses were conducted using SPSS and R software.

Table 1. Variable Definitions (Continuous and Count) and Descriptive Statistics

Variable	Definition	Mean ± SD
Age	Individual's age in years	25.13 ± 5.72
Internet usage (before)	Daily internet usage before lockdown (hours)	7.02 ± 3.41
Internet usage (during)	Daily internet usage during lockdown (hours)	10.12 ± 4.18
Daily handwashing	Average number of handwashing sessions per day	7.45 ± 2.08
Leaving home (14 days)	Number of times left home in past 14 days	5.25 ± 1.02

The descriptive statistics show that internet usage increased during the lockdown, while physical mobility decreased. Such behavioral shifts may have influenced respondents' mental health conditions during the pandemic.

3. Results and Discussion

3.1. Basic Trends

The first confirmed case of COVID-19 in Bangladesh was reported on March 8, 2020. Following this, the government began implementing measures to flatten the curve of infections and deaths. A nationwide public holiday was declared on March 26, 2020, resulting in the closure of educational institutions, markets, and entertainment venues, as well as the suspension of domestic and international flights. The national vacation period was extended multiple times, continuing until June 1, 2020.

Despite these preventive actions, compliance with social distancing measures was inconsistent. Many individuals continued to leave their homes for non-essential activities, contributing to the rapid rise in infection rates. Dhaka, the capital of Bangladesh, is one of the most densely populated cities in the world, home to over 21 million residents [10]. This extreme population density has been a major factor in the spread of the virus.

According to data from the Institute of Epidemiology, Disease Control and Research (IEDCR), more than 50% of confirmed COVID-19 cases were recorded in the Dhaka division, with approximately 70% of these cases originating from the city itself [11]. The statistics further revealed gender-based differences in infection rates, showing that males were more susceptible to the virus than females. As of September 13, 2020, males represented 71.2% of the infected population, while females accounted for 28.8%.

Interestingly, the death rate among males was higher (77.2%) compared to females (22.8%), and the mortality rate was found to be greatest (39%) among individuals aged 60 years and above [12]. These findings highlight the combined influence of demographic and behavioral factors on infection and fatality patterns in Bangladesh.

3.2. Association Between Quarrelsome Environment and Mental Health Challenge

As both variables are binary categorical, the Chi-square test of independence was employed to assess whether there exists a significant association between them. The hypotheses were formulated as follows:

H_0 : There is no association between quarrelsome environment and mental health challenge.

H_1 : There is an association between quarrelsome environment and mental health challenge.

The Chi-square test statistic is expressed as:

$$\chi^2 = \sum_i \sum_j \frac{(f_{ij} - e_{ij})^2}{e_{ij}}$$

where f_{ij} and e_{ij} denote the observed and expected frequencies corresponding to the i-th category of X and j-th category of Y, respectively.

The computed value of the Chi-square statistic was found to be $\chi^2 = 6.408$ with 1 degree of freedom and a p-value of 0.01136. Since the p-value is less than the 5% significance level ($\alpha = 0.05$), we reject the null hypothesis and conclude

that there is a statistically significant association between quarrelsome home environments and the prevalence of mental health challenges among respondents.

3.3. Factors Influencing Mental Health Challenge During COVID-19

To further explore determinants of mental health challenges, a binary logistic regression model was applied. This model estimates the probability (or odds ratio) that an individual will experience mental health challenges during the COVID-19 pandemic. An ordinary least squares (OLS) model was not suitable since the dependent variable, *Mental health challenge*, is binary categorical with two possible outcomes (1 = Yes, 0 = No).

The logistic model is given by:

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k$$

where p denotes the probability that an individual experiences a mental health challenge, and X_i represents the explanatory variables.

Continuous predictors were included directly in the model, while categorical predictors were converted into dummy variables, using the first category as a reference. The estimated coefficients, their standard errors, odds ratios, and p-values are summarized in Table 2.

Table 2. Summary Statistics of the Logistic Regression Model

Variable	Coefficient (β)	Std. Error	Z-value	P-value
(Constant)	-1.241	0.512	-2.43	0.015
Age	0.087	0.031	2.81	0.005
Leaving home (14 days)	0.142	0.067	2.12	0.034
Quarrelsome environment	0.381	0.114	3.34	0.001
Work from home (WFH)	-0.218	0.098	-2.22	0.026
Online class effectiveness	-0.172	0.079	-2.18	0.029
Feeling COVID-19 related stress	0.295	0.102	2.89	0.004

The results indicate that *Age*, *Leaving home during the past 14 days*, *Quarrelsome environment*, *Work-from-home (WFH) status*, *Online class effectiveness*, and *Feeling COVID-19 stress* are statistically significant determinants of mental health challenges. Positive coefficients suggest that increases in these variables raise the likelihood of experiencing mental health challenges, whereas negative coefficients (such as WFH and online class effectiveness) indicate protective effects.

4. Conclusions

This study reveals that a considerable proportion of students and early-career professionals in Bangladesh are struggling with reduced efficiency in their daily working life, heightened anxiety about future employment, and growing financial insecurity. The increasing dependence on social media, combined with pandemic-induced isolation, has made their everyday lives more stressful and emotionally taxing. These factors collectively contribute to the rise in mental health challenges, which may pose long-term risks for both academic performance and professional stability.

To address these challenges, several measures are recommended. The government should establish accessible mental health support services, such as online counselling platforms specifically designed for students and young professionals. Such initiatives could help individuals cope with anxiety, fear, and emotional distress associated with prolonged isolation and uncertainty.

Furthermore, the creation of online learning and professional development platforms would allow students and professionals to continue acquiring skills and knowledge from home, preparing them for future career growth. The government and private sector should also collaborate to expand high-speed internet access across the country. Mobile network operators can contribute by strengthening their infrastructure and offering affordable data packages to facilitate continuous online education and remote work.

These interventions not only support productivity and career continuity but also play a crucial role in reducing mental stress, nervousness, and loneliness. Additionally, a comprehensive epidemiological study is recommended to assess the levels of fear, helplessness, and overall mental well-being among the population. The findings from such studies could

guide the implementation of large-scale telemedicine and online counselling services to provide timely and effective mental health care during future crises.

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