



Study of Mental Stress Related with Lifestyle During COVID-19: A Case Study on Bangladesh

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An outbreak of new coronavirus pneumonia occurred in December 2019 in Wuhan, Hubei province, China. Former infectious disease outbreaks have significantly affected individuals' mental health along with the expected physical health outcomes. Experts are still uncertain of the trajectory of the COVID-19 pandemic, the projected number of cases and deaths, or to what extent quarantine measures will disrupt daily life. This paper attempted to explore the actual mental health condition of the mass people and its effect on their lifestyle in terms of some demographic factors and their activities which were hampered by the COVID-19. This study was a cross-sectional, observational study carried out in Bangladesh. The online self-reported questionnaire developed by the investigators contained a total of four sections related to personal information, family related information, mental stress due to COVID-19, and lifestyle affected by COVID-19. Mental stress because of the COVID-19 contained 11 items, and the effect of mental stress related to lifestyle contained 16 items. Participants rated them in a 5-point Likert scale format. All statistical analyses like Bar Graph, table, Pearson correlation matrix were performed using Excel 2016. Findings indicate that nearly 52% of the respondents reported high stress, 19% of respondents reported moderate stress, and 29% of respondents were in less stress due to COVID-19 while we collected the data. Maximum working people (30% of respondents of the study) were mostly concerned about their job, income, and education. Almost 32% of respondents attempted to leave their residence. On the other hand, 17% of respondents had a plan to go back to their village. The COVID-19 outbreak created fear and stress on Bangladeshi citizens. We found that the mental stress of the respondent hampered their job life and education, accommodation, daily life activities, and attitude. Therefore, it is essential to introduce different policies for easing the everyday life of mass people, and implementation of proper monitoring may help to manage the different types of problems related with lifestyle during this pandemic situation.

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Introduction

An outbreak of new coronavirus pneumonia occurred in December 2019 in Wuhan, Hubei province, China (Chen Q, Liang M, Li Y, et al., 2020). Scientifically, the virus is named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2) (Sakib N, Bhuiyan AI, Hossain S, et al., 2020). The new Coronavirus disease referred to as COVID-19 began to spread throughout China in early 2020. The most common COVID-19 symptoms are fever, fatigue, dry cough, myalgia, dyspnea, etc. that may develop within 2-14 days of infection through respiratory droplets and close contact (Naser et al., 2020; Wang Y, Di Y, Ye J, Wei W., 2020). However, due to this rapid worldwide exposure and the challenges it brought with, the World Health Organization (WHO) had to declare it to be a pandemic in early March 2020. This rapid increase in confirmed cases and deaths has created problems such as stress, anxiety, and depression both in medical personnel and in the general population (Liu S, Yang L, Zhang C, et al., 2020).

Former infectious disease outbreaks have significantly affected individuals' mental health along with the expected physical health outcomes (Lau JT, Griffiths S, Choi KC, Tsui HY., 2010; Sim K, Chua HC., 2004). The novel coronavirus disease is by far the most concerning the outbreak of typical pneumonia since the far less detrimental 2003 outbreak of severe acute respiratory syndrome (SARS) (Hawryluck L, Gold WL, Robinson S, et al., 2004). The pandemic has been declared an international public health emergency by the WHO (WHO, 2020a). As of 20 July 2020, affecting all but a few countries and territories, a total of 14,756,530 cases and 611,734 deaths were confirmed around the world (WHO, 2020b). Experts are still uncertain of the trajectory of the COVID-19 pandemic, the projected number of cases and deaths, or to what extent the quarantine measures will disrupt daily life (Zandifar A, Badrfam R., 2020). The unpredictable nature of this situation and uncertainty regarding COVID-19 can often trigger psychological distress and mental

illness, including depression, anxiety, and traumatic stress (Bao Y, Sun Y, Meng S, Shi J, Lu L., 2020; Cheung Y, Chau PH, Yip PS., 2008; Zandifar A, Badrfam R., 2020). A recent survey by the Indian Psychiatric Society shows a twenty percent increase in mental illness since the coronavirus outbreak in India (Loiwal. M, 2020). Bangladesh confirmed the first coronavirus case on 8 March 2020. In response to the COVID-19, the government of Bangladesh closed all educational institutions and both public and private offices on March 16, 2020, as an effort to suppress the outbreak. Moreover, the government of Bangladesh declared special "general leave" from 26 March in the name of "Lockdown" and extended it up to 30 May 2020 in seven different time slots. Public gatherings were also banned (WHO, 2020c), and travel from countries with high transmission risks such as China, Iran, and Italy were suspended (Agency, A., 2020). Despite these efforts, COVID-19 reached all 64 administrative districts in Bangladesh by July 21, 2020, causing over 2,79, 144, and 3694 deaths (IEDCR, 2020). High population density, poor personal hygienic practices, and poor economic conditions make Bangladesh particularly vulnerable to this virus (Al Banna MH, Sayeed A, Kundu S, et al., 2020). Fear of becoming sick, the isolation of lockdown, the financial necessity to work, and the inability to avoid venturing out in public for essential items such as food may increase psychiatric problems within the general population (Al Banna MH, Sayeed A, Kundu S, et al., 2020). Recent publications suggest mental health during the COVID-19 pandemic is associated with gender, socioeconomic status, occupation, having COVID-19 like symptoms, perception of COVID-19, interpersonal conflicts, social media use, and social support (Wang Y, Di Y, Ye J, Wei W., 2020). Older adults and individuals with low incomes are at increased risk for poor mental health (Holmes et al., 2020).

There is no information yet on mental stress associated with or during this COVID-19 pandemic in the general population of Bangladesh. It is

predictable that during a pandemic, a humanitarian crisis may arise in a developing country like Bangladesh. In most incidents, it will be the combined effects of a variety of shortages that will likely culminate in the worst outcomes (Truog RD, Mitchell C, Daley GQ., 2020). Besides, as the Bangladeshi people are under lockdown, or quarantine, or maintaining social distance since of March 2020, it is anticipated that the probable direct or indirect psychiatric sufferings may rise as reflected by the COVID-19 related suicide occurrences in the country (Bhuiyan AI, Sakib N, Pakpour AH, Griffiths MD, Mamun MA., 2020; Griffiths MD, Mamun MA., 2020). This paper attempted to explore the actual mental health condition of the mass people about their lifestyle with some demographic factors and their activities which was hampered by the COVID-19.

Methodology

It was a cross-sectional, observational study carried out in Bangladesh. An online semi-structured questionnaire was developed by using google forms. The link of the questionnaire was sent through E-mails, Facebook messenger, WhatsApp, and other social media to the contacts of the investigators. The participants were encouraged to roll out the survey to as many people as possible. Thus, the link was forwarded to people apart from the first point of contact and so on. Upon receiving and by clicking the link the participant got guidelines and a preview of a questionnaire. Then a set of several questions appeared sequentially, which the participants were to answer. As it was an online study, participants with access to the internet could participate in the study. Participants were able to understand English and willing to participate in the survey. The collection was initiated on 19 July 2020 and closed on 26 July 2020. We collected 154 responses based on the purposive sampling method. We were able to

collect data from across various districts of Bangladesh. The socio-economic variables included age, gender, occupation, education, income, cost, house rent, and area of residence.

The online self-reported questionnaire developed by the investigators contained four sections related to personal information, family related information, mental stress due to COVID-19, and lifestyle. Mental stress because of the COVID-19 contained 11 items, and the effect of mental stress related to lifestyle contained 16 items. Participants rated them in a 5-point Likert scale format. Statistical analyses were performed using Excel 2016. Pearson correlation analysis between variables was employed to assess the significant association between variables.

Study Area: The novel coronavirus disease (COVID-19) began to spread in November 2019, in Wuhan, China (WHO, 2020a). Following this, WHO announced COVID-19 as a global pandemic on March 11th, 2020 (WHO, 2020b). The accelerating spread of COVID-19 and its outcomes around the world has led people to experience fear, panic, concern, anxiety, stigma, depression, racism, and xenophobia (Wang Y, Di Y, Ye J, Wei W., 2020). Bangladesh confirmed their first COVID-19 case on the 8th of March 2020, followed by a nationwide lockdown from 26 March, which had been extended several times until 30 May 2020 to prevent human transmission. The government deployed armed forces to facilitate social distancing on March 24. Emergency healthcare services and law enforcement were exempt from this announcement. Yet more than 11 million people left Dhaka to return to their home districts and thus helped spread the diseases nationwide (ANADOLU AGENCY, 2020). Figure 1 shows the COVID-19 cases in Bangladesh across the administrative districts (IEDCR, 2020).

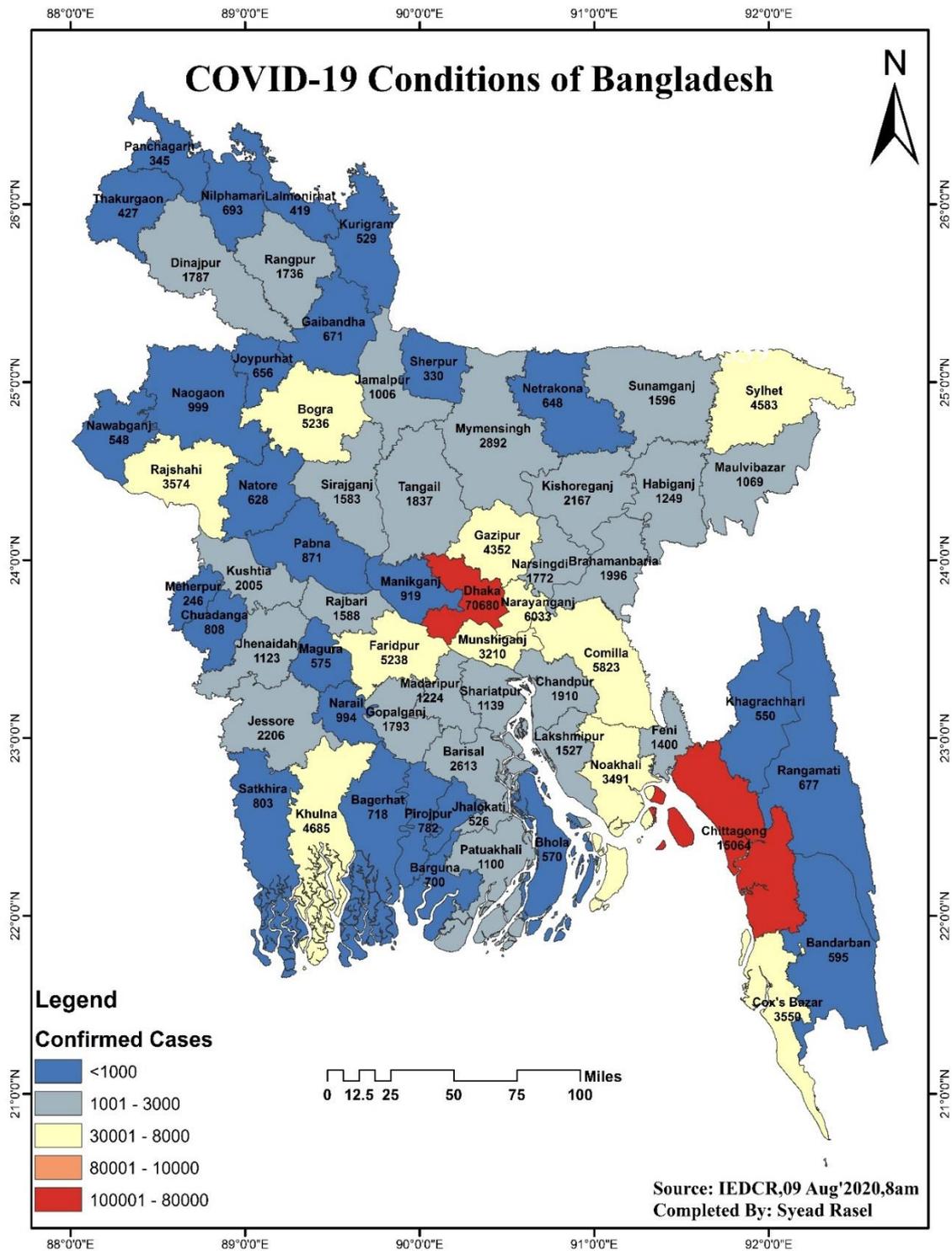


Figure 1. Administrative district wise COVID-19 cases in Bangladesh

Results and Discussion

Demographic Information: A total of 154 participants attended on the online survey, among which the percentage of male and female was 53% and 47% respectively, and the composition of age group were 18-25 years (56%), 26-35 years (43%), and above 36 years (1%) old. We found that the frequency of young participants is higher than the older and mid-age group because of frequent access and use habits of the internet existing in the

country. Among the participants, 86% of respondents are from the urban area, and 14% of respondents are from the rural area. In terms of education, 57% of respondents are graduate, 28% of respondents are pursuing a post-graduation degree, 15% of respondents are completing Higher Secondary Certificate (HSC) degree.

Table 1. Details of responses by living area, gender and education

	Living Area		Gender		Education		
	Urban	Rural	Male	Female	HSC	Graduate	Post Graduate
Number	132	21	81	72	22	87	43
(%)	86	14	53	47	15	57	28

However, in terms of occupation status, almost half of the respondents were students (49%). Although, other groups such as private sectors (13%), engineers (7%), healthcare professionals (6%), govt. service (4%), bankers (2%), media (1%), academic (1%), housewife (1%), NGO (1%), formal business (1%), informal service (1%) and unemployed (8%) participated in the study. In this study, we found that 46% of respondents had no earning sources, 15% of respondents earned less than 10,000 BDT, 5% of respondents earned between 10,000 to 20,000 BDT, 19% of respondents earned between 20,000 to 40,000

BDT, 7% of respondents earned between 40,000 to 60,000 BDT, 5% of respondents earned between 60,000 to 100,000 BDT and 3% of respondents earned above 100,000 BDT per month.

Family Information: Among the participants, 72.8% of participants were single, and 27.2% were married. In this way, 63% of respondents had a nuclear family, and 37% had extended family. In terms of residential conditions, 57% of respondents had their own houses, whereas 43% of respondents were living in a rented house while conducting the study.

Table 2. Family description by marital status, family status and residence condition

	Marital Status		Family Status		Residence Condition	
	Single	Married	Nuclear	Extended	Permanent	Temporary
Number	112	42	97	57	65	89
(%)	73	27	63	37	42	58

Mental Stress Condition related with Lifestyle:

Different factors are required to assess the mental stress condition related to lifestyle due to the COVID-19 pandemic. Table 3 shows those factors of the study and represents the numbers of different level of a respondent according to various factors.

There were five levels of mental stress conditions for the respondents. They provided their responses on these levels.

Table 3. Different factors of lifestyle

Factor	Strongly agree	Agree	Moderate	Disagree	Strongly disagree
Fear of exceeding govt. job age limit (F1)	46	22	33	28	25
Plan of going back to village (F2)	12	14	28	33	67
Taking frequent COVID-19 updates (F3)	47	43	29	23	12
Feeling hopeless about COVID-19 situation improvement (F4)	53	43	34	17	7
Feeling Lonely (F5)	64	44	28	6	12
Fear of hampered education (F6)	66	34	30	11	13
Irregular physical exercises (F7)	25	30	46	23	30
Irregular prayers (F8)	22	28	19	27	58
Fear of leaving house (F9)	28	21	45	21	28
Fear of losing Job (F10)	45	27	37	16	29
No mental Relaxation activities (F11)	18	23	27	44	42
Panicked by COVID-19 rumours (F12)	49	32	32	21	20
Fear of reduced income (F13)	51	27	32	13	31
Providing support to Poor (F14)	104	37	7	4	2
Fear of using public bus (F15)	75	33	23	10	13
Uncomfortable to work from home (F16)	50	36	25	21	22

After collecting the data, we categorized the effect of mental stress over four broad categories. Sixteen factors were categorized into four factors in terms of the effect of their life. These four broad categories are given below:

1. Effect on job life and education

2. Effect on accommodation

3. Effect on daily life activities

4. Effect on attitude

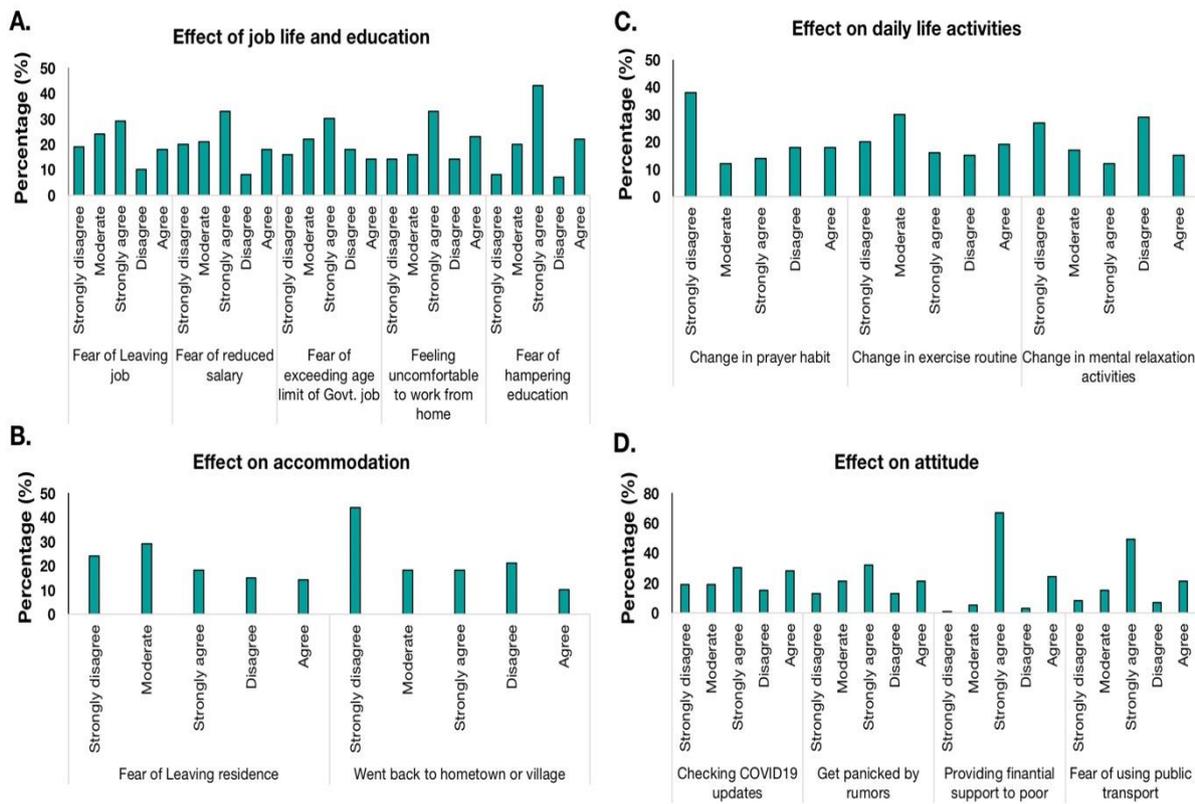


Figure 2. Effect on job life and education, daily life activities, accommodation and attitude

Effect on job life and education: The effect on job life and education was measured through different five factors. These were fear of leaving job, fear of reduction of income, fear of exceeding the age limit of govt. job, feeling uncomfortable working or studying from home, and fear of hampering education. From the above data, it is found that 29% of people were very concerned that they might lose the job due to COVID-19, 18% of respondents were concerned about losing the job, 24% of respondents were moderate about losing jobs, 19% of respondents were not concerned about losing the job. Another chart shows that almost 51% of respondents claimed that their income was reduced during the COVID-19 pandemic. 28% of respondents earned the same income during COVID-19 and before. The chart also shows that almost 44% of respondents claimed that their age might not permit them to apply for govt. job due to pandemic lockdown condition. As reported, 22% of respondents had a good chance of applying govt. job and 34% of respondents had enough time to

apply for govt. job. In this study, it is found that 56% of respondents were not comfortable at working or studying from home, 16% of respondents were moderate at working or studying from home, 28% of respondents were comfortable at working or studying from home. From the above data, it was found that 63% of people were concerned about their education or their children's education life due to COVID-19, 20% of respondents were moderate in hampering education, 15% of respondents are not concerned about hampering education.

Effect on accommodation: The effect on accommodation was measured from two factors. These were fear of leaving the residence and were planning to go back to the village. In this study, we found that 32% of respondents had taken preparation for leaving their rented house during the pandemic situation because they tried to reduce their cost of livelihood. 29% of respondents didn't take any decision regarding this issue. However, 39% of respondents didn't leave their residence

during the COVID-19 pandemic. In this connection, we found that 65% of respondents didn't have any plan to go back to their village, and 28% of respondents were planning to go back to their villages with their families where as 18% of respondents didn't take any decision on this matter. Effect on daily life activities: The effect on daily life activities was assessed from three categories. These were irregular prayer habits, irregular physical exercises, and steps taken for mental relaxation. From the above figure, we noticed that 56% of respondents were doing their regular prayer before, and during COVID-19, 12% of respondents tried to do their regular prayers and 32% of respondents were very irregular in prayers. In terms of physical exercises, 35% of respondents were very regular, 30% of respondents sometimes conducted their physical exercises, and 35% of respondents were very irregular. Results also showed that 57% of respondents claimed that they were doing some different activities for their mental refreshment, 17% of respondents had a moderate view on this topic, and 27% of respondents passed their daily activities as the same before the COVID-19.

Effect on attitude: The effect on attitude was assessed through four factors. These were: taking updated information regarding COVID-19, fear of using public buses, giving financial support for the poor, and panicked by rumors. From the figure, we noticed that 58% of respondents were very much aware of the updated information about the COVID-19, 19% of respondents were neutral to get information about COVID-19, and 23% of respondents were careless of getting any news regarding COVID-19. Another graph shows that 53% of respondents got panicked by various rumors regarding the COVID-19, 21% of respondents sometimes got panicked and 26% of respondents didn't get panicked by different news of COVID-19. We also found that 91% of respondents tried to provide financial support to the poor. In terms of using public transport, 70% of respondents were worried about using public transport for communication purposes. 15% of

respondents used public transport without any hesitation during the pandemic.

Factors Controlling the Mental Stress: Relationship Assessment: Pearson correlation matrix (PCM) is applied in this study to describe the association between the studied factors/variables of the human mental stress (Table 4). From the Table 4, a strong significant correlation is found between the statement F2 and F3 ($r = 0.255$, $p = 0.001$), indicates that plan of going back to hometown and taking frequent updated information of the COVID-19 is linked together. A significant relationship was also found between the statement F2 and F9 ($r = 0.185$, $p = 0.02$) indicating the relationship between the plan of leaving urban area and the fear of leaving the current accommodation; probably due to uncertainty of paying the house rent because of the reduced or no income during the pandemic situation. A positive significant correlation between the factor F1 and F5 ($r = 0.159$, $p = 0.05$) illustrates the relationship between the fear of exceeding the govt. job age limit and the feeling of loneliness during the COVID-19. Besides this, the positive significant correlation between F1 and F6 ($r = 0.28$, $p = 0.004$) indicates that fear of exceeding the age limit required to apply for the govt. job is correlated with the fear of hampering the educational life which reflected the mental uncertainty of the current students or the people preparing for the govt. job. In addition, many students and workers who had been staying in the capital city for a long period of time were planning to leave their houses and as well as loosed their earning sources which reduced their income directly. Moreover, students who were still studying and were trying to get a govt. job frequently got panicked by different COVID-19 rumors as shown by a positive correlation between F1 and F12 ($r = 0.22$ and $p = 0.006$). Thus, these factors create massive stress of the young age respondent's life.

A significant relationship between F3 and F5 ($r = 0.178$ and $p = 0.027$) indicates the relation between taking the updating news about the COVID-19 and

the loneliness feeling, indicating that updated COVID-19 news made people mentally stressed as it was increasing at an alarming rate while this study was conducted. Moreover, people who were used to take the update information of COVID-19 got puzzled easily by various rumors of the COVID-19 ($r = 0.292$ and $p = 0.001$). A significant positive correlation between the uncomfortable feeling to work from home and the loneliness feeling ($r = 0.263$, $p = 0.0009$), taking no steps of mental relaxation and feeling hopeless about the

COVID-19 situation improvement ($r = 0.232$, $p = 0.0007$), indicates the clear mental stress of responders which made a change in their regular lifestyle. Survey result also indicated that, during this pandemic people tried to provide their financial and social support to the poor ($r = 0.174$ and $p = 0.03$). Thus, we can conclude that, there are many significant positive correlations among the different factors of the data indicating a clear occurrence of mental stress on human due to the COVID-19 pandemic which affected their daily lifestyle in a negative way as consequences of the pandemic.

Table 4. Pearson correlation matrix (PCM)

Factors	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
F1	1.000															
F2	0.105	1.000														
F3	0.130	0.255**	1.000													
F4	-0.033	0.120	-0.030	1.000												
F5	0.159**	0.109	0.178**	0.172**	1.000											
F6	0.278**	-0.039	0.026	0.118	0.122	1.000										
F7	0.147	0.119	0.110	0.173**	0.129	0.010	1.000									
F8	0.077	0.039	-0.132	0.192**	0.092	0.083	0.234**	1.000								
F9	0.226**	0.185**	0.101	0.164**	0.183**	0.354**	0.159**	-0.001	1.000							
F10	0.331**	0.128	0.063	0.038	0.098	0.181**	0.214**	0.059	0.378**	1.000						
F11	0.084	0.238**	0.154	0.270**	0.232**	0.037	0.374**	0.209**	0.097	0.191**	1.000					
F12	0.221**	0.112	0.292**	0.109	0.234**	0.154	0.110	-0.023	0.240**	0.108	0.108	1.000				
F13	0.188**	0.132	0.140	0.146	0.184**	0.201**	0.172**	-0.018	0.472**	0.562	0.120	0.216**	1.000			
F14	0.114	-0.091	0.174**	0.155	0.230**	0.204**	0.058	-0.020	0.062	0.054	-0.005	0.115	0.085	1.000		
F15	0.169**	0.055	0.076	0.049	0.086	0.334**	0.034	0.043	0.311**	0.277**	-0.008	0.226**	0.394**	-0.008	1.000	
F16	-0.008	0.161**	0.256**	0.335**	0.263**	0.098	0.090	0.057	0.183**	0.066	0.234**	0.345**	0.112	0.213**	0.019	1.000

Due to the lockdown because of the COVID-19, a huge number of people are now losing their jobs in Bangladesh, especially the people of hand to mouth categories (ANADOLU AGENCY, 2020). For instance, the extreme economic fallout among the hand to mouth living Bangladeshi people was reported to be per capita income dropped by 79% in the rural area which was 82% for slums people within February to early April (ANADOLU AGENCY, 2020).

Students and career seekers are usually the early age group represented more than half of the respondents in our study. These young age people are now feeling stressed because of their hampered educational life and are thinking about their future career.

Conclusion

This study investigated the mental stress of the general population in Bangladesh during the COVID-19. Nearly 62% of the respondents suffered from different stress factors which is close to the 64.3% reported in India (Kazmi SSH, Hasan K, Talib S, Saxena S., 2020). This rate is much higher than the 32.1% reported in China (Wang Y, Di Y, Ye J, Wei W., 2020) and the 16.8% reported in the UK (Shevlin M, McBride O, Murphy J, et al., 2020). Findings indicate that nearly 52% of the respondents reported as high stress, 19% of represents reported moderate stress and 29% respondents are in less stress for COVID-19.

Previous evidence suggests that the pre-COVID-19 era prevalence of mental disorders varied from 6.5% to 31% among adults in Bangladesh (Hossain MD, Ahmed HU, Chowdhury WA, Niessen LW, Alam DS., 2014).

Higher stress was observed in females which is consistent with most previous findings (Limcaoco RSG, Mateos EM, Fernandez JM, Roncero C., 2020; Wang Y, Di Y, Ye J, Wei W., 2020) as well as extensive previous epidemiological research placing women at a higher risk of anxiety which lead to mental stress (Wang Y, Di Y, Ye J, Wei W., 2020). However, Shevlin and Kazmi reported the opposite relationship between stress and gender (Kazmi SSH, Hasan K, Talib S, Saxena S., 2020; Shevlin M, McBride O, Murphy J, et al., 2020) while Zhang Y and Ma ZF observed no relationship between gender and stress (Zhang Y, Ma ZF., 2020). Directives of lockdown may increase domestic violence against women and social services focused on mitigating the risk could possibly lower gender-discrepant mental health rates (Al Banna MH, Sayeed A, Kundu S, et al., 2020).

Maximum working people (30% respondents of the study) are mostly concerned about their job, income and education. Almost all the unemployed people are mostly affected by their mental stress due to COVID-19 which is very close to another research where 77% respondents believe that the pandemic may affect their education, job or income. No outdoor activities, no schooling and no job exams make them mentally stressed. Moreover, students of HSC candidates were more vulnerable to mental pressure as their exam has not conducted yet, which is a very board crucial exam for entering to the undergraduate school. For this reason, the span of their education life is extended which creates an uncertain condition to their life (e.g. restriction in govt. job age limit). Maximum employee felt uncomfortable to work from home. Accommodation is another factor which created mental stress of the people of Bangladesh. Almost 32% respondents attempted to leave their residence. On the other hand, 17% respondents had a plan to go back to their village.

The COVID-19 outbreak created fear and stress on the Bangladeshi citizens. It was found that COVID-19 causes mental stress on the respondent which hampered their job life and education, accommodation, daily life activities, attitude etc. as a consequence. However, to delineate the causes and factors controlling the human stress related with lifestyle, several statistical applications were applied in this study. Therefore, it is essential to introduce different policies for easing the everyday life of mass people and the implementation of proper monitoring may help to manage the different issues related with the lifestyle during the pandemic situation.

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