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Impact of COVID-19 on Mental Health of the Health Care Workers: A Cross sectional Study at Sher- E- Bangla Medical College Hospital, Barishal

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ABSTRACT

The world is passing through and is being challenged by the emergence of a novel Severe Acute Respiratory Syndrome Corona virus (SARS-Cov-2). The World Health Organization (WHO) proclaimed the 2019 Corona Virus Disease (COVID-19) an international public health emergency on January 30, 2020. (WHO). A structured questionnaire was used to conduct a cross-sectional study. The Patient Health Questionnaire (PHQ9) and Generalized Anxiety Disorder-7 (GAD-7) were used as the two instruments to assess the symptoms of anxiety and depression in HCWs. Inferential statistics like the independent t-test, one-way ANOVA, and Pearson Product Moment Correlation Coefficient were used to examine the relationship between general psychological impact and socio-demographic factors. Descriptive statistics like frequency, percentage, mean, and standard deviation were used to describe the socio-demographic characteristics. The age varied from 30-55 years, with a mean of 34.92 (SD=6.65). More than half (53.3%) of the respondents were Muslims, and the majority (84.8%) of them were female. The average GAD7 score was 2.65 (SD:.76). The findings showed that only 18.5 respondents had been diagnosed with severe depression, whereas 50% of respondents scored as having moderate levels of anxiety. The average GAD7 score was 2.65 (SD:.76). As mental health issues were strongly related to all the mental health outcomes, more than half of the health workers experienced depression and only a few reported generalized anxieties at work. More anxious than other healthcare professionals were nurses. By emphasizing these things, it is advised that health workers can improve their mental health.

INTRODUCTION

The COVID-19 pandemic might trigger mental health problems among the general population as well as HCPs. (Repon, 2021). Loneliness is associated with poor physical and mental health and higher mortality risk (Henriksen, 2019). Till to date, the effective ways to limit the viral spread are frequent hand washing, use of face masks, lockdown, quarantine, and social distancing.30 But adopting social distance in daily life contradicts the deep-rooted human nature to relate to others and therefore brings about the feeling of loneliness (Odusanya, 2020). As the HCPs are always in close contact with the COVID-19 patients, this may make them a super spreader of corona virus. Therefore, self-isolation and quarantine from family members are frequent for them. These factors due to the HCP's nature of profession may create additional psychological pressure on them, (Khan,2020). Besides other health problems, several cross-sectional studies reported poor sleep quality among lonely people (Repon,2021). Both loneliness and poor sleep quality impacted the mental health of HCPs.38 compared to non-clinical staff, frontline medical staff are 1.4 times more likely to feel fear of infection and twice as likely to suffer from anxiety and depression. Therefore, the frontline fighters of the COVID-19 pandemic are more susceptible to developing mental health problems than others. In developing countries, the healthcare system is already overburdened (Buenaventura, 2020).

The sudden reversal of role from HCW to a patient might lead to frustration, helplessness, adjustment issues, stigma, fear of discrimination in the medical staff (Rana, 2020). Despite the low mortality rate of 2 %, the COVID-19 virus has a high transmission rate, and the mortality is higher than that caused by severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) combined (Lombardi, 2020). Studies from previous infectious outbreaks suggest that this group may be at risk of experiencing worsening MH during an outbreak. Current evidence examining the psychological impact on similar groups suggests that this group may be at risk of experiencing poor MH as a direct result of the COVID-19 pandemic. Compounding the concerns about these data is that HSCWs will be likely to not only be at a higher risk for experiencing MH problems during the pandemic, but also in its aftermath (De Kock, 2021). There are some specific features of the COVID-19 pandemic that may specifically heighten its potential to impact on the MH of HSCWs. Firstly, the scale of the pandemic in terms of cases and the number of countries affected has left all with an impression that 'no-one is safe'. Media reporting of the pandemic has repeatedly focused on the number of deaths in HSCWs and the spread of the disease within health and social care facilities which is likely to have amplified the negative effects on the MH of HSCWs. In the face of this global crisis, healthcare workers are directly involved

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in the process of diagnosing, treating, and caring patients with COVID-19 and are at risk for mental distress and adverse health effects. Psychiatric disorders such as stress, depression, and anxiety are on the rise, with an increasing number of confirmed and suspected cases of the disease, high work pressure, lack of protective equipment, widespread media coverage, lack of Page 7 of 9 promising therapeutic agents and feelings of inadequacy (Lai, 2020). In 2005, study conducted during the severe acute respiratory syndrome (SARS) outbreak, health workers feared that they would become infected or infect their family, friends, or colleagues (Ho, 2005). Before the outbreak of COVID-19, nearly 50 percent of healthcare workers suffered from job stress and burnout. Mental health problems of healthcare staff were widespread, though hidden issues, before the outbreak of COVID-19. These problems have now become more evident due to the massive outbreak. In a recent study on medical and nursing staff working in many hospitals around the world, 36.9% had mental health disorders below the threshold, 34.4% had mild disorders, 22.4% had moderate disorders, and 6.2% had severe mental disorders (Rad, 2020). Patient care in hospital wards with less than adequate beds, as well as environmental stress factors such as increased number of patients, long work shifts, and increased number of infected medical staff and their deaths pose as a major risk for the mental health of the healthcare personnel. Therefore, it is essential to decrease the levels of anxiety in the present circumstances. It is also important to protect the mental health of healthcare workers in the inpatient wards of COVID-19 patients (Mosheva, 2021). Adequate rest, adequate fluid intake, and proper nutrition can improve the physical and mental health of the health care workers. Some studies have shown that multidisciplinary mental health support by psychiatrists, clinical psychologists, psychiatric nurses, and another mental health professionals, clear communication, providing accessible and reliable psychological services such as e-books and mobile applications, and reduction in work shifts of the health workers to less than 16 hours a day can be effective in improving the mental health of health care workers. Implementing these measures is recommended for the improvement of the mental health status in healthcare personnel during the COVID-19 outbreak (Tahara, 2021). Mental health is defined as a person's emotional, psychological, and social well-being (Agha, 2021). From the beginning of the COVID-19 pandemic, news broadcasts have addressed the novel virus and how details are developing each day. As a result, healthcare 6 workers' mentality is drastically affected. For instance, many healthcare workers are left to deal with personal protective equipment (PPE) shortage, high transmissibility of COVID-19 to friends and loved ones, uncertainty due to lack of treatment guidelines, increased work responsibilities, and physical isolation Due to the pandemic, many healthcare workers fear bringing home the virus to their loved ones, resulting in mental stress from work. Healthcare workers are expected to face the virus daily due to them being in constant close contact with sick patients. Even with the PPE, it is not guaranteed that one will not contract the virus and spread it to others. Some healthcare workers are brave enough to speak on behalf of most workers about the mental burden they experience from work. Some have verbalized the feelings of helplessness, worthlessness, and guiltiness related to poor patient outcomes. Today, there is only so much one can do to lessen the spread of COVID19, such as the importance of practicing hand hygiene, social distancing, staying at home when one is sick, and getting vaccinated. The objectives of this study are to describe the socio demographic characteristics of the respondents and to assess the psychological disorder of the respondents during pandemic situation. In addition to examine the relationship between socio-demographic characteristics and mental health related disorders among the respondents.

LITERATURE REVIEW

This section reviewed existing literature on the impact of COVID-19 on mental health among the HCWs related to COVID-19, generalized anxiety disorder, patients' loneliness, sleep disorder and demographic characteristics. The main purpose of the literature review articles is to explore and improve healthcare workers' mental health in Sher-E-Bangla Medical College Hospital, Barishal, along with discovering interventions to cope with difficult stressors throughout the COVID-19 pandemic. The research questions will be thoroughly answered based on the literature reviews that are separated into three categories, such as the relevancy of depression and anxiety in healthcare workers, comparison of healthcare workers 'mental health in the emergency department (ED) and intensive care unit (ICU), and interventions to improve healthcare workers' mental well- being.

The world Health Organization (WHO) confirmed the COVID-19 as a global pandemic on March 11, 2020. Since then, the Since then, the world struggles this pandemic, and nobody knows when it will stop The Bangladesh government declared a country-wide lockdown on March 26,2020, to hold the spreading of this virus among its citizens. The COVID-19 responses have impacted the personal, social, and work life of many people world-wide. Therefore, the COVID-19 pandemic fearfully affected the mental health of general population as frontline fighters; the impact of COVID-19 pandemic on mental Health of HCWs was high due to relatively unknown and fatal virus. The ongoing pandemic has situated HCWs in a situation of intense psychological pressure and moral responsibilities.

A study concerning the mental health of healthcare professional during COVID-19 pandemic in Bangladesh. According to their findings, the composition of physicians, pharmacist, nurses, and medical technologist were 30%,23%,26%and 26% respectively. Among all HCPs, male was 57 % and 43%. Only 36% respondents

belong to the age group of 40 years (Hossain, 2020). Another cross- sectional study conducted which aim was to assess the mental health outcomes of Bangladeshi HCPs and associated risk factors, in 2020. A total of 355 HCPs aged between 20 and 60 years. All the participants completed a self-administered questionnaire through Google Forms consisting of socio-demographic characteristics and mental health outcomes, measure loneliness, depression, anxiety, and sleep disturbance using the UCLA loneliness scale-8, patient health questionnaire-9, 7-item generalized anxiety disorder scale, Pittsburgh sleep quality index. The present study observed the prevalence of loneliness, depression, anxiety, and sleep disturbance among HCPs were 89%, 44%, 78%, and 87%, respectively. The factors significantly associated with the development of mental health problems among HCPs were working environment, economic condition, and education level, area of residence, marital status, gender differences, professional category, body mass index, and smoking habit. (Yang, 2018). Another study on Fear of COVID-19 and Depression and his colleague result found that of the total sample (N = 3388), just over half were females (n = 1754, 51.8%). The majority were married (60.8%), had no children (57.8%), had elderly people who were at high-risk of COVID-19 living at home (66.1%), and had no chronic physical disease (57.5%). Three quarters of the total sample were the general population (75.4%), and the remainder was healthcare professionals (24.6%). Over half the HCPs were medical officers (53.2%), 10% were nurses, 6.8% were interns, 10% had affiliations with medical colleges (e.g., lecturer, assistant or associate professor, registrar), and the remainder held other positions. The prevalence of depression among HCPs in relation to personal protective equipment they were using in their patient care. Approximately two-thirds of HCPs purchased their own safety equipment at least once (63.2%) and 49% had got PPE from their employer. Only 15.9% were satisfied with the quality of the PPE provided, and the prevalence of depression was higher among HCPs who were dissatisfied with their PPE (30.2%) (Sakib, 2021). According to Chen *et al.* (2021), it was found that 543 (60.20%) doctors, 311 (34.48%) nurses, and 48 (5.32%) other occupations like administration staff of the hospital were included in the study. The percentage of male and female participants was 283 (31.37%) and 619 (68.63%) respectively. Healthcare workers who demonstrated no or mild anxiety and depression 9 resulted in 681 (75.50%) and those who had moderate or severe anxiety and depression resulted in 221 (24.50%). Based on the GAD-7 scores, 274 (30.38%) healthcare workers experienced mild anxiety, whereas 150 (16.63%) experienced moderate or severe anxiety. In comparison, the PHQ-9 scale showed that 274 (30.38%) healthcare workers felt mild depression and 165 (18.29%) felt moderate or severe depression. Healthcare workers who had depression and anxiety together resulted in 291 (32.26%). The remaining 330 (36.59%) healthcare workers did not experience any symptoms of depression and anxiety. This study shows that depression and anxiety were relevant in healthcare workers' mental status. The independent risk factors for both depression and anxiety were respiratory symptoms, digestive symptoms, negative coping style, and job burnout, (Chen *et al.*, 2021). Regarding the article's published in 2021, the findings, before the peak of COVID-19, 40% experienced depression and 38% experienced anxiety among healthcare workers, whereas 33% experienced depression and 24% experienced anxiety among the public. During COVID19, the prevalence of depression was 31% and anxiety was 40% among healthcare workers, 26% suffered from depression and 22% suffered from anxiety among the public. After the peak of COVID-19, 22% experienced depression and 22% experienced anxiety among healthcare workers. In contrast, 62% experienced depression and 44% experienced anxiety among the public (Deng, 2021).

MATERIALS AND METHODS
A cross-sectional survey was undertaken by administering structured questionnaire. Two tools, including the Patient Health Questionnaire (PHQ9) and Generalized Anxiety Disorder-7 (GAD-7), were employed to measure anxiety and depression symptoms among HCWs. The data analyses were carried out using descriptive statistics and inferential statistics.

Study Area
This research was conducted in Sher-E-Bangla Medical College Hospital, Barishal among healthcare workers. There are 1000 health-care workers inSher-E-Bangla Medical College Hospital, Barishal.

Population and Unit of Analysis
The population in this study was the frontline health care workers (Doctor, Nurse, and Medical Technologist) who work in the COVID19 dedicated unit at Sher-E-Bangla Medical College Hospital, Barishal during the time of study. The individual was the unit of analysis.

Selection Criteria
• Respondents whose age was 25 years.
• Respondents who had been working more than six months in COVID-19 unit.
• Frontline healthcare workers who were willing to participate.

Exclusion Criteria
• Unwilling to participate in the study.
• Working experience less than six month had been excluded from the study.

Sampling
The total population of this hospital is 1000. Sample size was estimated by using G power analysis in which accepted minimum significant level (α) 0.05, power 0.80 ($1-\beta$) and the effect size of 0.30 and actual sample size

is 84. To reduce the attrition rate by 10% more samples were added. Therefore, the total sample size was 92.

Techniques of Data Collection

Data collection was carried out using the convenience technique. After getting the approval from the authority, respondents were being explained about the study purpose, data collection procedure and benefit of the study by the author. After getting consent from the respondent, the data were collected by face-to-face interview with structured questionnaire. Approximately 30 minutes were needed to complete the interview session. The collected information from the participants kept in confidential. The participation of the respondent in this study was completely voluntary. Respondent had the right to withdraw the data from the study at any time without any reason or penalty. Their anonymity and identity were strictly maintained using code numbers. Raw/ primary data were kept in my file cabinet for 3 years, and it would be destroyed after publication of research in a scientific journal.

The study's aims were listed on the first page. Besides, confidentiality information, the right of withdrawal, consent, and voluntary participation was also presented. Informed consent was taken by all participants prior to participation. The eligibility criteria of this study include both frontline and non-frontline HCWs. Participants were not receiving any incentives. Relevant data was extracted into structured tables including country, setting, population, study design, number of participants, mental health conditions and their measurement tools and main study results. Where available, we extracted risk factors and protective factors; data was checked for accuracy and completeness.

Data Analysis and Processing

Current best practice guided the tabulated and narrative synthesis of the results. The studies' outcomes were categorized according to the psychological impact of COVID-19 on HSCWs of. The data was analyzed by using SPSS version 23. Descriptive statistics such as frequency, percentage, mean, and standard deviation was used to describe the socio-demographic characteristics, inferential statistics such as independent t-test, one- way ANOVA and Pearson Product Moment Correlation Coefficient was used to examine the relationship general psychological impact and socio-demographic factors.

Ethical Consideration of the Study

The ethical clearance was obtained from the hospital. Written informed consent was taken from study participants and privacy was maintained with the exclusion of personal identifiers. This part should contain adequate detail to reproduce reported data. It can be divided into subsections to demonstrate data type and collection, and if several methods are described. Methods already published should be indicated by a reference; only relevant modifications should be described. The methodology should be written concisely in detail by maintaining the continuity of the texts.

RESULTS AND DISCUSSION

Socio-Demographic Characteristics of the Respondents.

Table 1 shows the Socio-demographic characteristics of the respondents among 92 respondents the mean age was 34.92 (SD= 6.65) years, which was ranged from 30-55 years. Majority of the respondents (84.8%) were female and more than half (53.3%) of them was Muslim. Most of the respondents (90.8%) were married. Many of the participants (95.6%) were nurses. More than half (72.8%) have working experience in COVID-19 ward. Most of them (69.6%) family members were tested positive of COVID-19 and 59.8% has ever been quarantine due to due COVId-19 during the last 12 month. 73.9% of respondents were tested positive. Regarding Training on IPC only 30.3% of respondents got training. The majority of the (75%) respondents were healthy, and 84.8% of participants did not suffer any chronic diseases.

Table 1: Demographic Characteristics of Respondents

Variables	Categories	N	%
Age	25-34	54	58.7
	35-45	32	34.8
	46-55	6	6.5
Gender	Male	14	15.2
	Female	78	84.8
Profession	Doctor	4	4.3
	Nurse	85	92.4
	Medical Technologist	3	3.3
	Medical Graduate	4	4.3
Education	Diploma in Nursing	53	57.6
	Diploma in Medical Technology	3	3.3
	BSc in Nursing	24	26.1
	Master's in public health	8	8.7

Religion	Islam	49	53.3
	Hindu	39	42.4
	Christian	4	4.3
Work Experience in COVID-19 Hospital during last 12 month	Yes	76	82.7
	No	25	27.2
Family members tested positive for COVID-19	Yes	64	69.6
	No	28	30.4
Have you Ever been quarantine last 12 month?	Yes	55	59.8
	No	37	40.2
Have you ever been tested positive for COVID-19?	Yes	68	73.9
	No	28	26.1
Have you got COVID-19 Vaccine?	Yes	88	95.7
	No	4	4.3
Received Training on IPC	Yes	28	30.4
	No	64	69.6
Perceived health status	Healthy	69	75
	Moderately healthy	22	23.9
	Poor	1	1.1
History of Diseases	Hypertension	7	7.6
	Heart disease	1	1.1
	Diabetes	4	4.3
	Asthma	2	2.2
	None	78	84.8

Patients Health Questionnaire (PHQ-9) Depression Measure Scale (N=92)

Table 2 S hows that the distribution of frequency, percentage, means and SD of depression among the respondents during COVID-19 pandemic. According to the findings the mean score of depression was calculated 30.51 (SD±3.80) out of maximum 36 points which indicate higher level of depression. According to most of the respondents had moderate to severe depression. Findings was consistent previous studies was conducted in Bangladesh by R. Islam and associates & China by Hu, *et al*, 2020.

Table 2: Total score of Patient Health Questionnaire (PHQ9)

	Valid	92
	Missing	0
N	Mean	30.51
	Median	30.51
	Range	15-36
	Std. Deviation	3.80

The results from the survey in India & Malaysia showed that 835 (41.5%) frontline nurses reported high levels of emotional exhaustion while 556 (27.6%) nurses marked high depersonalization while working caring for COVID-19 patients (Hu, *et al*, 2020). In India the population-based study, female gender, being a student, having symptoms suggestive of COVID-19, and poor perceived health were associated with higher rates of anxiety and depression; on the other hand, the availability of accurate information and the use of specific preventive measures, such as handwashing, seemed to mitigate these effects (Wang *et al.*, 2020).
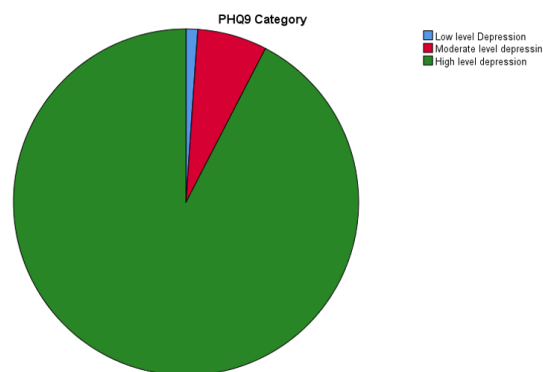

Figure 1: PHQ (Category (Level of Depression).

Generalized Anxiety Disorder (GAD7) on COVID 19 (N=92)

The following figure illustrates the results of generalized anxiety disorder (GAD7) among the respondents during the COVID19 pandemic situation. The mean score on GAD7 was 2.65 (SD±.76). The results reveled that half (50%) of the respondents had score of moderate level of anxiety while only 18.5 respondents diagnosed at severe anxiety. Similar finding was found in study conducted in China, Malaysia, and Yemen. A possible reason for similar findings is because when the pandemic situation across the region and worldwide health care workers suffered high levels of depression & anxiety due to devastating unknown threat.
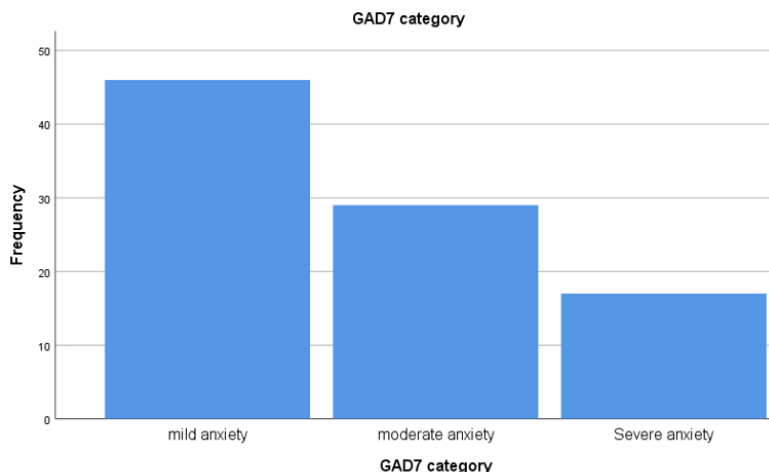

Figure 2: Distribution if generalized anxiety disorder (GAD7) on COVID 19

CONCLUSION

This study reported a high prevalence of symptoms of depression and moderate level of anxiety among health workers Sher E Bangla Medical College Hospital, Barishal, during the initial phase of the pandemic. More than half of the health workers faced depression and only a few health workers reported generalized anxiety in their workplace as mental health problems were significantly associated with all the mental health outcomes. Nurses had higher anxiety than other health workers. Improving the mental wellbeing of health workers is recommended by focusing on stigma reduction, equipping health workers with protective measures, as well as ensuring personal and family support for those with a history of mental health issues.

Limitations

The study has some limitations which need to be acknowledged. Firstly, the study was conducted during the early phase of pandemic and thus the mental health outcomes might still reflect conditions existing before the pandemic. The relative contribution of the pandemic to the increase in mental health disorders needs to be evaluated using a longitudinal study design. Secondly, there might be respondent bias as the findings were self-reported by health workers and based on a subjective scale. Importantly, the tool used in the study should be taken into consideration while reporting mental health outcomes. Although the history of mental illness and medications taken for any kind of mental illness was included in the questionnaire, specific type of mental illness was not identified, which may or may not have affected the current symptoms of anxiety, depression. Despite limitations, this study provides early evidence on the mental health status among health workers during the COVID-19 pandemic in Bangladesh, which should be of interest to policymakers, health facility managers and those involved in the response to COVID-19 or any future epidemic.

RECOMMENDATIONS

Based on the limitations of this study, the following recommendations are presented for further research. Future descriptive study may be conducted in large scale to increase the generalizability of the findings to other same settings. Followed by intervention study may be recommended to investigate the relationship between Depression and demographic characteristics. Findings act as base line data for higher authority to mitigate mental health problems. Government organizations and non-government agencies should launch their programs on a substantial educational campaign to improve understanding and preventive measures of depression and anxiety.

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