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Investigating Anxiety, Depression and Obsessive-Compulsive Disorders (OCD) among healthcare workersin COVID-19 unit and the control group

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Abstract

To investigate anxiety, depression, and Obsessive-Compulsive Disorders (OCDs) among the healthcare workers (HCWs) to compare the healthcare workers in COVID positive services with the control group. This cross-sectional study was conducted on 198 subjects participating in the study. To test the difference between the two groups involved in COVID-19 hospitalization section and normal section in Anxiety, Depression, and Obsessive-Compulsive Disorders Scale, two sample independent t-tests, however, Welch–Satterthwaite P Values were considered for test significance. The categorical variables (sex, branch type, etc.) were also tested using the Chi-Square test to make sure that the two samples were not influenced by the demographics of the population. 198 subjectspartici pated in the study, among whom 72% were female and 28.3% were male. 130 participants (66%) worked in COVID and 68 participants (35%) worked in other sections.The mean age of the two samples was close to 35 and most of them (~45%) were nurses. 57% of the pooled samples had Emergency Response Experience (ERE).There was no significant difference between the two groups regarding sex, education, marital status, and ERE, however, the branch type showed major differences between the two groups(P-value < 0.08). The age difference between the two groups was also insignificant. Working in the COVID-19 section significantly increased anxiety scores from 9.62 to 13.15 with a P-value of <0.03. Obsessive-Compulsive Disorders Scale also significantly increased from 19.72 to 26.6. Working in the COVID-19 section roughly doubled the depression score from 7.49 to 14.71 with a p-value of <0.0001. It is concluded that the health care workers in the COVID-19 section had significantly increased obsessive-compulsive disorders, depression, and anxiety as compared to the control group. Both groups showed no significant difference in terms of age, sex, education, marital status, and ERE. The psychological impact of the COVID-19 pandemic among the frontline HCWs should be understood well. The important public health measure is to protectthem to overcome this global pandemic.

Keywords: COVID-19, depression, obsessive-compulsive disorder, anxiety, pandemic

Introduction

Several fearsome epidemics of infectious disease have always affected the history of humanity [1]. The world in 2020 has seen a distinctive type of coronavirus with an acute respiratory syndrome called COVID-19 which appeared in Wuhan, China, and rapidly extended to other countries [2, 3]. The World Health Organization (WHO) declared COVID-19 to be a pandemic on March 11, 2020 [4].The fatality rate of this pandemic is 2.3% higher than that of influenza and also is more contagiousthan severe acute respiratory syndrome (SARS) [5, 6].

In addition to the significant increase in mortality caused by the coronavirus COVID-19 pandemic, the mental health of the population was also negatively impacted [7,8].

More importantly, the COVID-19 pandemic canalso significantly affect the mental health of the workersin the healthcare sector (HCWs), who directly struggle with this crisis. The HCWs who provide frontline healthcare to struggle with infectious diseaseswill have higher mental health problems in short and longterms [9]. Some psychological outcomes of HCWs during an infectious disease outbreak are caused bysome specific occupational factors [10]. Their psychological outcomes are aggravated by job-related stress, adhering to isolation, working in a high-risk workplace, and working in a specific team. Therefore, such psychological outcomes can be mitigated by access to protective equipment and also specialized training leading to perceived safety [10]. For the above reasons, HCWs are particularly vulnerable to mental health

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problemsincludingfear, depression, anxiety, and insomnia [11,12]. The effect of this unexpected condition on the mental health of frontline HCWs i.e. mental problems such as anger fear anxiety, and depression was shown in the evidence obtained from Wuhan city, China [13].

HCWs fighting against COVID-19 showed 23.2% of the prevalence rate of anxiety and 22.8% of the prevalence rate of depression as compared to 22.6%-36.3% of anxiety rate and 16.5%-48.3% of depression rate among the general population in China, showing that the whole population may be considerably affected by the crisis [14-16].

Therefore, this survey aims toinvestigate anxiety, depression, and Obsessive-Compulsive Disorders (OCDs)among the healthcare workers (HCWs)to compare the healthcare workers in COVID positive services and outpatient clinicsasthe control group.

Analysis method

The data for 198 subjects were analyzed using SAS® 9.4. There weres some missing values in some of the demographic and also target variables (Depression 9 missing values and Obsessive-Compulsive Disorders one missing value). To test the difference in Anxiety, Depression, and Obsessive-Compulsive Disorders Scale between the two groups involved in COVID-19 hospitalization section and normal section, we used two sample independent t-tests, however, as a result of heterogeneity of variances between the two groups, Welch–Satterthwaite P Values were considered for test significance. The categorical variables (sex, branch type, etc.) were also tested using the Chi-Square test to make sure that the two samples were not influenced by the demographics of the population.

Results

The demographic characteristics of the pooled sample are shown in Table 1. 198 subjects participated in the study, among whom 72% are female and 28.3% are male. 130 participants work in COVIDand 68 participants work in other sections. As shown in Table 1, nearly 66% of the subjects are working in the COVID-19 section of the hospital and 35% are working in the normal section. The mean age of the two samples is close to 35 and most of them (~45%) are nurses. Bachelor is the most common education level (42.42%) and more than half of the sample (61.4%) are married. 57% of the pooled samples have Emergency Response Experience (ERE).

Table 2. Results of comparison between Normal and COVID groups

Variable	Normal (n=68)					COVID (n=130)					P Value
Sex	**Man**		**Woman**			**Man**		**Woman**			0.21
	23 (33.8%),		45 (66.2%)			33 (25.4%)		97 (74.6%)			
Age	33.69 (±9.98)					35.61 (±8.63)					0.16
Branch Type	**Doctor**	**Midwife**	**Nurse**	**Staff**	**Technician**	**Doctor**	**Midwife**	**Nurse**	**Staff**	**Technician**	0.08
	1 (1.47%)	8 (11.76%)	25 (36.76%)	26 38.24%)	8 (11.76%)	10 (7.69%)	8 (6.15%)	64 (49.23%)	36 (27.69%)	12 (9.23%)	
Education	**High-School**	**Bachelor**	**Master**	**Associate**		**High-School**	**Bachelor**	**Master**	**Associate**		0.17
	0 (0.0%)	14 (20.59%)	29 (42.65%)	25 (36.76%)		8 (6.15%)	29 (22.31%)	55 (42.31%)	38 (36.76%)		
Marital Status	**Married**		**Single**			**Married**		**Single**			0.72
	40 (59.7%)		27 (40.3%)			81 (62.3%)		49 (37.69%)			
Emergency Response Experience	**Yes**		**No**			**Yes**		**No**			0.40
	36 (52.9%)		32 (47.1%)			77 (59.2%)		53 (40.8%)			
Anxiety*	9.62 (±9.86)					13.15 (±12.78)					0.03
Depression*	7.49 (±8.67)					14.71 (±14.2)					0.0001
Obsessive-Compulsive Disorders Scale*	19.72 (±12.9)					26.6 (±18.07)					0.003

Discussion

In the present study, 198 healthcare workers working in both the COVID-19 section and normal section participated in the study, most of whom were female. Most of the participants worked in the COVID-19 section. The mean age of the two samples was close to 35 and most of them were nurses. Most of the participants held a Bachelor's degree and more than half of the sample were married. Emergency Response Experience (ERE) was found in 57% of the pooled samples. The findings show that no significant difference was found between the two groups in terms of sex, education, marital status, and ERE while there was almost a significant difference between the two groups in terms of branch type. Age was not significantly different between the two groups. The results of the present study show that the healthcare workers in the COVID-19 section had significantly higher anxiety scores than the normal group had. Besides, the healthcare workers in the COVID-19 section had significantly increased Obsessive-Compulsive Disorders as compared to the control group that is they suffered from higher Obsessive-Compulsive Disorders than the control group did. Depression was also doubled among the healthcare workers in the COVID-19 section meaning that the Depression among the COVID-19 section healthcare workers was approximately twice as much as that of the normal group. In other words, there was a statistically significant difference between the COVID-19 and normal groups in terms of anxiety, Obsessive-Compulsive Disorders, and Depression.

From the psychological viewpoint, the frontline HCWs in the medical literature in different pandemics such as SARS, avian flu, and new COVID-19, have suffered various stress disorders such asanxiety,depression, PTSD, panic, etc. persisting for a long time and even affecting their mentality [17].

The early evidence obtained from Wuhan showed how this unprecedented situation affected the mental health of the healthcare workers, reporting anxiety, depressive symptoms, anger, and fear [18]. Not only these problems leave a long-lasting effect on the mental health of healthcare workers [9] but also they negatively affect decision-making and prevent the urgent response to COVID-19 [18]. To overcome such mental health effects resulting from this pandemic, the capacity of healthcare systems should be reinforced [19].

Ricci et al. [20] in their systematic review found HCWs to have high levels of anxiety, depression, PTSD, acute disorder, and burnout, during and after the outbreaks, which is consistent with our study results.

The risk of developing symptoms which are clinically significant such as PTSD [21-23], anxiety [24-27], and depression [24] increases due to working in a high-risk environment, which is consistent with our study.

Tang et al. found in their study that younger age was a risk factor for PTSD, nurses were more likely to develop PTSD and there was an association between female gender and increasing PTSD among the HCWs [23] which does not support our study results.

Our study also is in line with a study conducted in a hospital in Beijing showed that the quarantined health workers in high-risk clinical sites such as SARS unit or those with a family member suffering from SARS reported significantly higher post-traumatic stress symptoms than those without the same experiences [28, 29, 12]. Medical professionalscuring SARS patients or working during the outbreak of SARS also reported fear, depression, anxiety, and frustration [12, 30].

Comparably,significant symptoms of post-traumatic stress disorder were found among the health professionals workingin quarantine COVID-19 units without properprotective measures and those who saw the death of fellow doctors [31], which supports our study results.

Pappa et al. [32] in their systematic review found the high prevalence rates of depression, insomnia, and anxiety of healthcare professionals and alsooccupational and gender differences between the female HCPs and nurses with higher rates of affective symptoms than the male and medical staff.

In Hong Kong, medical and nursing staff was found vulnerable to burnout, anxiety and mental exhaustion [33] and in Germany, doctors reported high levels of anxious and depressive symptoms [34] while the study found that most of the health care workers in COVID-19 units who may be vulnerable to anxiety, depressionand Obsessive-Compulsive Disorders are nurses.

Xu et al. also found that not only frontline respiratory and intensive care physicians and nurses but also theother specialistssuch as anesthesiologists and surgeonsmay be affected by the psychological impact of this crisis [35].

According to Kang L et al. in Wuhan, severalHCWs in Wuhan were affected by this pandemic and they should receive mental health support even if they have mildpsychological reactions [18].

Our study results are in line with the findingsof theprevalence rates among 1,257 health care workers in fever clinics and COVID-19 wards in China who reported high rates of distress (71.5%), depression (50.4%), and anxiety (44.6%) [24].

Similarly, another survey study on the initial stage of the COVID-19 epidemic in China showed that 1,652 respondents had moderate-to-severe psychological disordersand one-third of them reported moderate-to-severe anxiety, and 16.5% of them reported moderate-to-severe depression [16] while our study found that working in COVID-19 section has significantly increased anxiety score from 9.62 to 13.15 and depression was doubled among the healthcare workers in COVID-19 section.

In line with our study results, Abba-Aji also revealed a surge in reported symptoms of obsessive-compulsive disorders correspondingly with a high level of stress during the COVID-19 pandemic [36].

Li Z et al. [37] in their study on COVID-19 showed that frontline nurses had significantly lower physical or emotional injury than the non–frontline nurses and the general public, which does not support our study results.

The HCWswho experience psychological stresscan be prevented from demanding support due to difficult recognition of their stress, work commitment sense and fear of asking for help, and time

limitation. It is essential to monitor and assess thewell-being and mental health of the HCWs. They can focus on the main issues which they should deal withby understanding theirexpectations and roles which can avoid the uncertainty leading to stress and anxiety [38].

Conclusion

The present research aimed to investigate the effect of anxiety, depression, and obsessive-compulsive disorders (OCD) on the health employees working in the COVID-19 unit. Healthcare workers in the COVID-19 section had significantly increased obsessive-compulsive disorders, depression, and anxiety as compared to the control group. Both groups showed no significant difference in terms of age, sex, education, marital status, and ERE. The psychological impact of the COVID-19 pandemic among the frontline HCWs should be understood well. The important public health measure is to protect them to overcome this global pandemic.

Conflict of interests
The authors declare that they have no competing interests.

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Ethical approval
Consent of Ethics of this paper is 3773205-514.10.

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