COVID-19-Related Posttraumatic Stress Disorder among Jordanian Nurses during the pandemic

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Abstract

Background: The 2019 coronavirus outbreak (COVID-19) has been declared a pandemic and has greatly affected both patients and healthcare workers. This study was conducted to explore the extent of posttraumatic stress disorder (PTSD) experiences among nurses as a result of the COVID-19 pandemic in Jordan.

Method: This study used a cross-sectional study design with a convenience sampling approach. A sample of 259 participants completed the study questionnaires, including a socio-demographic questionnaire and the Posttraumatic Stress Disorder Checklist for DSM-5, between May and July 2020.

Result: The prevalence of PTSD among the study participants was 37.1%. The majority of study participants who exhibited PTSD symptoms presented the lowest level of PTSD (17%). The results indicated significant differences in overall COVID-19-related PTSD according to the participant’s age (F = 14.750, P = .000), gender (F = 30.340, P = .000), level of education (F = 51.983, P = .000), years of experience (F = 52.33, P = .000), place of work (F = 19.593, P = .000), and working position (F = 11.597, P = .000), as determined by one-way ANOVA.

Conclusion: Nurses must be qualified and accredited to cope with reported PTSD cases and their consequences in relation to COVID-19 outbreaks. A close collaboration with a multidisciplinary team is required to recognise, manage, and encourage safety literacy among health care professionals and individuals diagnosed with or suspected of PTSD due to COVID-19 outbreaks or any other viral outbreaks.

Keywords: PTSD; Nursing; Coronavirus; Pandemic; Infectious disease
Background

Coronaviruses are a family of viruses that are responsible for the common cold, in addition to more severe diseases including acute severe respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). Scientists identified a new coronavirus as the cause of a 2019 outbreak first reported in Wuhan, China (1). The 2019 novel coronavirus outbreak (COVID-19) has been declared a public health emergency and has attracted considerable worldwide attention (2), infecting more than 24 million people and causing around 825,000 deaths worldwide as of August 2020. Under COVID-19, many countries across the globe took stringent steps and introduced an urgent lockdown and/or curfew to deter further dissemination and control this infectious disease (3). People who develop symptoms of COVID-19 or show similar symptoms are quarantined for 14 days (4). Other people have been forced to stay home with minimum physical mobility and interactions within their hometowns. Jordan announced its lockdown on March 17.

Four days of completed curfew did not stabilize the problem, and the government eventually relaxed its actions to encourage people to move from 10 a.m. to 6 p.m. for shopping in local stores only, and then eventually allowed online and delivery services to do so. By reaching the case of 400, the lockdown included a ban on the individual who owns a car, except health care service, military system employees, and governmental decision-maker (5).

In May, the Jordanian government eased the lockdown and reopened the economy, taking into consideration the short-term and long-term financial and social effects of the lockdown. As a result, some industries and stores have been able to restart work steadily. However, social and cultural events including teaching, sports, public gatherings, cultural events, tourism, and prayers in the mosque and the church remained banned.

The numbers of infectious cases and casualties have continued to rise, which, in addition to a shortage of health care professionals and medical services across the world and a lack of consistent and accurate media reporting regarding the virus, has caused profound distress induced by confusion and uncertainty, which can impact the psychological well-being of health care workers and cause further distress, anxiety, and mental disorders such as posttraumatic stress disorder (PTSD) (6).
Posttraumatic stress disorder accompanies traumatic incidents outside the context of common human encounters, such as aggressive physical assaults, violence, illness, natural disasters, and recovery from some diseases (7).

People with PTSD experience disturbing thoughts or emotions linked to a traumatic incident long after the event occurred. A traumatic incident can be encountered or observed personally, or may even be derived through knowledge of a traumatic event endured by a close individual (7). PTSD is diagnosed after a person endures symptoms for at least one month after a traumatic incident. Symptoms more commonly appear within three months after the event, but can take years to build up (8). A broad range of signs are associated with PTSD, such as re-experiencing painful memories, recurrent recollections, flashbacks, nightmares, mental numbness, and avoiding individuals, environments, and trauma-related incidents, as well as heightened arousal such as difficulties sleeping and processing, becoming jumpy, and feeling anxious and annoyed (7).

Previous studies have indicated that nurses are in the frontline for developing PTSD (9), with ICU nurses presenting a higher prevalence of PTSD symptoms compared to other nurses (10). During the SARS epidemic and the H1N1 pandemic, the prevalence of PTSD among nurses ranged between 17–33% (11, 12). PTSD has a dramatic effect on nurses’ perception of their work, work environment, quality of care, and health-related quality of life (13). During the COVID-19 pandemic, these numbers will undoubtedly increase, as there is a shortage of safety equipment for hospital staff virtually all over the world, in addition to daily exposure to infection, deaths, doubts about working alongside fellow staff members who might be a COVID-19 case, anxiety about separation, strict measures, and loss of medical staff, which brings more strain to this already high-pressure task and increases the probability of anxiety and fear (14, 15).

Because COVID-19 is an emerging disease, more research is required on the psychological experience of frontline nurses battling COVID-19, especially as the medical environment and community differs between countries. Previous articles have reported the prevalence of the disease and its clinical symptoms, diagnosis, and management (16). Many studies have also called attention to the extent of psychological conditions experienced by medical workers, such as anxiety and depression (6). However, limited research has focused on addressing and investigating PTSD related to the COVID-19 pandemic. The current study aimed to address this
lack of knowledge by investigating the extent of nursing experiences of PTSD related to the COVID-19 pandemic in Jordan.

Methods

Approval to conduct the study was obtained from the Research Ethics Committee of the College of Nursing at Al-Zaytoonah University, Jordan. A descriptive correlational study design was used to achieve the research objectives among Jordanian nurses. In the current study, the target population was Jordanian nurses working with patients diagnosed with COVID-19. Convenience sampling was used to select the study population. The sample size was calculated using the role of thumb method, found to be 180 participants (17). The sample consisted of nurses who were willing to participate in the study, and excluded all non-Jordanian nurses, other medical health team workers, and nursing students. An online survey method was used in the current study. The researchers prepared and presented the research questions through a Google form, which was distributed through social media platforms and could be accessed via a link. All participants provided written informed consent. The nature, intent, methodology, and potential benefits of the study were clarified, and participants were assured that their participation in the survey was entirely voluntary and anonymous. The participants provided an in-depth self-report questionnaire on their demographic background, career history, and PTSD experiences. The researchers distributed the survey between May and June 2020, and it took approximately 10–15 minutes to fill out. All data were treated with confidentiality, and no access to the data was allowed except for the researchers themselves.

Study instruments

A self-report instrument was utilised as a measurement tool to investigate the extent of the research phenomena. It consisted of two sections: (1) demographic data, and (2) Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5).

Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5)

The PTSD Checklist for DSM-5 (PCL-5) is a 20-item self-report measurement tool that assesses the presence and severity of PTSD symptoms. Items on the PCL-5 correspond to the DSM-5 criteria for PTSD. The PCL-5 can be used to quantify and monitor symptoms over time, screen individuals for PTSD, and assist in making a provisional or temporary diagnosis of PTSD (18).
The participants were asked to rate their responses to 20 items using a 5-point Likert scale ranging from 0 “not at all” to 4 “extremely.” The score ranged from 0 to 80, and a PCL-5 cut-off point of 33 was considered a reasonable value to use for a provisional PTSD diagnosis. PCL-5 scores exhibited strong internal consistency (α = .94), and test-retest reliability (r = .82). The reliability of the tool was assessed on our sample and showed a high Cronbach’s α value (.989). The PCL-5 tool is freely available online through a link.

**Statistical analysis**

SPSS Statistics (version 24.0 released in 2016; IBM SPSS Statistics for Windows; IBM Corp., Armonk, NY, USA) was used for statistical analysis, and a p-value of < 0.05 was considered significant. Data are presented as mean and percentage. Analysis of variance (ANOVA) was performed to identify significant statistical differences between the study variables.

**Results**

**Socio-demographic characteristics**

A sample of 259 participants completed the study survey. The age of the participants ranged from 23 to 58 years, with more than half aged between 25 and 34 years old (53.3%, n = 138). Around half of the participants were male (52.1%, n = 135), and the majority of them were married (80.3%, n = 208). Table 1 details these results.

**Prevalence and level of PTSD related to COVID-19 case exposure**

Regarding COVID-19 case exposure, the majority of participants indicated that their workplace had received a COVID-19 case (74.5%, n = 193), with 53.3% (n = 138) reporting that they had been in direct contact with the patient. The results also showed that 56.4% of participants (n = 146) had a family member or friend who was either infected or suspected of having COVID-19 infection, and 11.2% (n = 29) of participants had been quarantined (Table 2).

A composite score for each tool was calculated by summarising the nurses’ responses to the questionnaire. The prevalence of PTSD among the study participants was estimated, with 37.1% (n = 96) of participants reporting a score indicative of PTSD. The level of PTSD among the study participants was divided into three categories: high level of PTSD, medium level of PTSD, or low level of PTSD. This criterion was adopted where the PTSD score exceeded the cut-off
point of 33, calculated according to the formula (highest grade - lowest grade) divided by three. Thus, the level of PTSD was split into three levels: low level from 33 to 48.6 points, medium level from 48.6 to 64.2 points, and high level from 64.2 to 80 points. The result of this study show that the majority of the study participants who exhibit PTSD symptoms were at the lowest level of PTSD (17%, n = 44) compared to the high (10.8%, n = 28) and moderate (8.5%, n = 22) levels (Table 3).

**Differences in COVID-19-related PTSD according to socio-demographic characteristics**

The results of the current study indicate that there were significant differences in overall COVID-19-related PTSD according to the participant’s age (F = 14.750, P = .000), gender (F = 30.340, P = .000), and level of education (F = 51.983, P = .000). Differences in COVID-19-related PTSD subdomains according to the participants’ socio-demographic characteristics were evaluated in the current study, and the results are presented in Table 4.

**Differences in COVID-19-related PTSD according to work-related factors**

Regarding work-related factors, a significant difference was reported in COVID-19-related PTSD according to the participants’ years of experience, place of work, and working position (F = 52.333, P = .000; F = 19.593, P = .000; and F = 11.597, P = .000, respectively). Detailed results are presented in Table 5.

**Distribution of PTSD experiences based on case exposure**

Regarding the case exposure of nurses, a significant difference was reported in COVID-19-related PTSD according to the participants’ close contact with a relative/friend with COVID-19 or infection/suspicion of COVID-19 (F = 10.522, P = .000), if their workplace had received COVID-19 cases (F = 31.059, P = .000), and if they were forced to quarantine (F = 361.30, P = .000). Detailed results are presented in Table 6.
Discussion
There have been few studies on the experience of PTSD symptoms in nurses due to infectious diseases such as COVID-19, particularly among Jordanian nurses. This study represents a step towards estimating the prevalence of PTSD among Jordanian nurses as a result of the COVID-19 pandemic and the governmental restrictions and quarantine in Jordan. This study aimed to explore the extent of nursing experiences of PTSD in relation to the COVID-19 pandemic in Jordan. The prevalence of PTSD among the study participants was 37.1%. The majority of them were at the lowest level of PTSD (17%), which is three times higher than the prevalence of PTSD among medical health workers in Singapore in 2020 (19) and three times higher than the prevalence of PTSD among health team workers during the SARS pandemic (11). Although the COVID-19 pandemic has some parallels to the SARS virus, it has become more severe and has contributed to more hospitalizations and deaths worldwide. Besides, COVID-19 tends to grow exponentially across the world, impacting more people including health team workers every day in several ways (e.g. financial losses, work overload, difficulties getting critical supplies, rising social alienation, confusion, etc.) (20). This could be attributed to decreased mental preparedness and fewer qualified health nurses to deal with emergencies such as the rapid spread of infectious disease, together with the exaggerated role of media and social interaction in discussing disease facts and accurate case numbers (21, 22). As a result, the mental health effects of the COVID-19 pandemic will be more severe and more serious than those of the SARS outbreak.

Another consideration is related to an increased sense of personal risk as COVID-19 is correlated with high morbidity and can be lethal in some patients. Anticipated stock shortages and an increase in suspected and confirmed reports of COVID-19 further contribute to stress and fear among health professionals (23). Another factor is related to the safety measures taken by the Jordanian government; as soon as reports of a novel coronavirus in China appeared in early 2020, the National Epidemics Committee and the Ministry of Health in Jordan approved several protocols in January to cope with the arrival of coronavirus to the world. Just a few days after learning that coronavirus-infected patients had taken part in a wedding in the city of Irbid, north of the capital Amman, on March 17, the government was forced to announce a quarantine and lockdown. These precautions were later described as one of the strictest measures in the world, impacting every aspect of individuals’ lives, including their physical and emotional status (5). By
June, the reports of Jordanian Ministry of Health stressed out a rapid increase of confirmed cases and death (1132 and 9 cases respectively) (24).

Nurses need to understand that this health crisis may persist for some time. Therefore, there is a need for training and qualifying the nurses to manage suspected cases of PTSD associated with the COVID-19 outbreak and its consequences. The goal would be to help them collaborate effectively with a multidisciplinary team to assess, treat, educate, and promote health awareness among individuals diagnosed with PTSD or suspected of having PTSD due to the COVID-19 outbreak and any further infectious outbreaks and their protocols and measures (25). The results of the current study highlight significant differences in overall COVID-19-related PTSD according to participants’ age, gender, and level of education, which is similar to previous studies that assessed PTSD among nursing staff in China related to the COVID-19 pandemic (26). Unlike earlier studies (1), our investigation highlighted that being a male nurse was associated with a higher PTSD level associated with the COVID-19 pandemic. This observation may be explained by the tendency of females to seek more social support than males; in stressful situations, females may use a tend-and-befriend response, a behaviour exhibited mainly by females in response to a threat (27). It refers to the protection of offspring (tending) and seeking out their social group or mutual defence (befriending) (27).

Our investigation indicated that younger nurses with lower educational qualifications and clinical experience had higher levels of PTSD compared to others, which is in line with previous studies (26) (28). While younger nurses with inadequate credentials are more likely to display a lower degree of competence, making them more prone to anxiety and mental disengagement than other health team members, frontline nurses who handle their dedication have physically and mentally challenged patients with infectious diseases, delivering high-quality clinical services for patients (29). Moreover, at the early stage of the infectious epidemic, junior nurses may not have received adequate warning about exposure or may not have been provided with adequate protection, leading them to potentially put themselves at higher risk, either physically or psychologically. For younger nurses with fewer qualifications and less experience, when exposed to any new infectious disease, they may spend hours monitoring television and social media platforms displaying information on newly identified cases, treatment modalities, recovered instances, and even deaths, which can significantly worsen their PTSD and anxiety (21, 22). Thus, it is highly
recommended that junior nurses are offered reliable sources of information in order to avoid myths, rumours, and misinformation that can feed into their anxiety. These reliable resources include the World Health Organization (WHO), the Centre's for Disease Control and Prevention (CDC), the Centre for Health Security, and the National Health Service, among others.

Regarding work-related factors, a significant difference was reported in COVID-19-related PTSD according to participants’ workplace and working position, which is consistent with the findings of other studies (28). Our results indicated that working in the private sector or as a registered nurse are associated with high levels of PTSD due to the COVID-19 outbreak. This finding can be explained by the need for these nurses to have a comprehensive knowledge, skill-set, and attitude that promotes patients’ well-being and enhances their care outcome. During the COVID-19 pandemic and the process of quarantine and lockdown, the Jordanian government and the Jordanian Ministry of Health allowed few private hospitals to test or treat COVID-19 cases, limiting case exposure to those nurses in the public and military hospitals (30) while putting private nurses under extensive pressure related to dealing with undiscovered cases and limiting their clinical experience of COVID-19 exposure and treatment. It is vitally important to provide high-quality psycho-education and skills training for registered nurses on how to manage virus-related uncertainties and on updates to rapidly changing treatment protocols, which may be particularly challenging for some nurses who are exposed to fewer COVID-19 cases (31).

Regarding the nurses’ case exposure, our results indicate a significant difference in COVID-19-related PTSD according to the participants’ close contact with a relative/friend with COVID-19 or infection/suspicion of COVID-19, receiving COVID-19 cases at their workplace, and being forced to quarantine, highlighting that nurses who have a suspected family member or friend with COVID-19 (mean score of 53.62) or who were forced to quarantine (mean score of 95.00) have higher levels of PTSD, consistent with previous studies (3, 32). This may due to the reason that nurses at their homes may develop fear of transmitting the virus to their family due to COVID-19 and had trouble and difficulties in isolation-related life (33). This kind of fear and anxiety may lead to high level of uncertainty and challenging leading people to experience a higher adaptation difficulty (34), which was also detected during the SARS outbreak (35).

Nurses serving at the frontline during the pandemic are critical, rendering them more vulnerable to distress and fatigue related to daunting health care services, in addition to fear of infection...
(36), being hospitalised (37), or transmitting the infection from or to their family members (38). According to a new study, nurses’ anxiety is worsened by exposure to life-threatening viral infections, the risk of infecting their family, and concerns regarding family care and responsibilities (38).

Combining a stress-reduction intervention with an educational program for enhancing hardiness and the adoption of protective mental health measures before working under such stressful conditions might be more effective in improving the mental health status of nurses during an infectious epidemic (32, 39).

The results of this study make a significant contribution to the existing literature on COVID-19 by presenting the experience of Jordanian nurses during the COVID-19 pandemic, specifically related to PTSD symptoms. However, several limitations need to be considered. The study was performed early in the COVID-19 outbreak and it was only performed in Jordan through online surveys, which may limit the generalizability of the findings. The study also failed to assess the mental health history of the nurses surveyed which may affect the results of their participation. Perhaps the limited interaction with COVID-19 patients in the hospital at the time of data collection resulted in the inability to observe the correlation between clinical psychiatric morbidity and contact with COVID-19 patients. Previous studies have shown that Post-traumatic morbidity represented a dynamic psychosocial reaction, not just immediate exposure, but also other contextual influences (40, 41). On the other hand, coping mechanisms have been shown to moderate the psychological effects of extremely traumatic situations (42). Psychiatric comorbidity workers have been most often faced with strategies focused on negative emotions, such as anxiety, denial, and confusion, which are often not discussed in our inquiries.

Follow-up studies could assess the progression or even a potential rebound effect of psychological manifestations once the imminent threat of COVID-19 subsides. Future follow-up studies may better determine the persistence or even the possible recovery of psychological conditions as the immediate danger of COVID-19 subsides. Future studies should analyse more predictors for PTSD related to an infectious disease outbreak, such as the presence of comorbid conditions, the impact of self-expectation, self-esteem, social support, coping measures, and the efficiency of the healthcare system. Future studies should also consider the mental health history
of the participants. This could be gathered via the socio-demographic questionnaire in follow-up surveys.

Conclusion

This study aimed to explore the extent of nursing experiences of PTSD during the COVID-19 pandemic in Jordan. Our study revealed that significant PTSD affects a sizeable minority of Jordanian nurses facing the consequences of the COVID-19 pandemic. Some of the variables associated with the severity of PTSD were male gender, younger age, lower educational qualifications and clinical experience, working in the private sector, or working as a registered nurse, which were all associated with a higher level of PTSD. Nurses need to be trained and certified to handle suspected cases of PTSD associated with COVID-19 outbreaks and their effects. They also need to work efficiently with a multidisciplinary team to identify, treat, and promote health awareness among health care providers and individuals diagnosed with PTSD or suspected of PTSD as a result of COVID-19 outbreaks, as well as any future infectious outbreaks.
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Table 1: Socio-Demographic Characteristics of the Participants (N =259)

| Variable         | Frequency (N) | Percentage (%) |
|------------------|---------------|----------------|
| **Age**          |               |                |
| less than 25     | 22            | 8.5            |
| 25-34 years      | 138           | 53.3           |
| 35-44 years      | 44            | 17.0           |
| 45-54            | 33            | 12.7           |
| above 54         | 22            | 8.5            |
| **Gender**       |               |                |
| Male             | 135           | 52.1           |
| Female           | 124           | 47.9           |
| **Marital Status** |             |                |
| Single           | 51            | 19.7           |
| Married          | 208           | 80.3           |
| **Level of education** |       |                |
| Diploma          | 73            | 28.2           |
| Bachelor         | 161           | 62.2           |
| Postgraduate     | 25            | 9.7            |
| **Years of experience** |     |                |
| less than three years | 17          | 6.6            |
| 3-6 years        | 90            | 34.7           |
| 7-10 years       | 88            | 34.0           |
| More than 10     | 64            | 24.7           |
| **Working place** |             |                |
| Government       | 77            | 29.7           |
| Private          | 162           | 62.5           |
| Military         | 20            | 7.7            |
| **Position**     |               |                |
| RN               | 109           | 42.1           |
| Category             | Count | Percentage |
|----------------------|-------|------------|
| In-charge            | 73    | 28.2       |
| Head- nurse          | 26    | 10.0       |
| Education            | 51    | 19.7       |
| **Department**       |       |            |
| Emergency            | 85    | 32.8       |
| Medical units        | 70    | 27.0       |
| Surgical units       | 39    | 15.1       |
| Critical units       | 48    | 18.5       |
| Mental health units  | 17    | 6.6        |
Table 2: Prevalence and Levels of COVID-19–Related PTSD Case Exposure (N = 259)

| Variable                                                                 | Frequency (N) | Percentage (%) |
|--------------------------------------------------------------------------|---------------|----------------|
| Does any of your family member or friends being suspected to COVID 19 infection |               |                |
| Yes                                                                      | 91            | 35.1           |
| No                                                                       | 146           | 56.4           |
| Do not Know                                                              | 22            | 8.5            |
| Did your place work receive any COVID 19 cases?                           |               |                |
| Yes                                                                      | 193           | 74.5           |
| No                                                                       | 66            | 25.5           |
| Were you in direct contact with any patient who is confirmed of COVID 19? |               |                |
| Yes                                                                      | 138           | 53.3           |
| No                                                                       | 121           | 46.7           |
| Did you force any type of quarantine?                                    |               |                |
| Yes                                                                      | 29            | 11.2           |
| No                                                                       | 230           | 88.8           |
Table 3: Level of PTSD among the Study Participants Due to COVID 19 Pandemic (N =259)

| Level of PTSD          | Frequency | Percent |
|------------------------|-----------|---------|
| Not a PTSD             | 165       | 63.7    |
| Low level of PTSD      | 44        | 17.0    |
| Moderate level of PTSD  | 22        | 8.5     |
| High level of PTSD     | 28        | 10.8    |
| Total                  | 259       | 100.0   |
**Table 4:** Distribution of PTSD experiences based on the participants' demographical characteristics (N =259)

| Variable | re-experiencing | Avoidance | Arousal | Negative | Overall |
|----------|-----------------|-----------|---------|----------|---------|
|          | Mean (S.D.)     | P-value   | Mean (S.D.) | P-value | Mean (S.D.) | P-value |
| **Age**  |                  |           |          |          |          |
| less than 25 | 15.00 (0.00) | 6.00 (0.00) | 17.00 (0.00) | 15.00 (0.00) | 70.00 (0.00) |
| 25-34 years | 6.41(7.812)    | 2.42 (3.02) | 7.41(10.75) | 6.09 (9.39) | 40.13 (28.83) |
| 35-44 years | 8.50 (2.53)    | 3.00 (1.01) | 10.00(2.02) | 7.50 (0.51) | 47.00 (4.05) |
| 45-54 years | 6.51(1.33)     | 3.88 (0.33) | 1.36 (0.99) | 3.88 (0.33) | 34.51 (0.00) |
| Above 54  | 11.00 (0.00)   | 5.00 (0.00) | 18.00 (0.00) | 11.00 (0.00) | 61.00 (0.00) |
| F= 12.453 | F= 16.835       | F= 21.739 | F= 11.520 | F=14.750 |          |
| P= 0.00*  | P= 0.00*        | P= 0.00* | P= 0.00* | P= 0.00* |          |
| **Gender** |                  |           |          |          |          |
| Male      | 9.90 (6.73)     | 3.38 (2.87) | 12.09 (10.16) | 9.41(8.34) | 52.04 (25.89) |
| Female    | 5.71(5.10)     | 3.06 (2.08) | 5.20 (6.140) | 4.83 (5.40) | 37.11 (17.44) |
| F= 30.340 | F= 0.996       | F= 42.743 | F= 26.911 | F= 30.340 |          |
| P=0.00*  | P= 0.319       | P= 0.00* | P= 0.00* | P= 0.00* |          |
| **Marital Status** |              |            |          |          |          |
| Single    | 6.47(7.50)     | 2.58 (3.00) | 7.90 (8.00) | 8.74 (5.50) | 43.84 (23) |
| Married   | 8.25 (6.00)    | 3.38 (2.37) | 9.01(9.40) | 6.85 (7.81) | 45.15 (23.52) |
| Level of education | Diploma | Bachelor | Postgraduate |
|--------------------|---------|----------|--------------|
|                    | F = 3.246 | F = 4.127 | F = 0.606 |
|                    | P = 0.073 | P = 0.043** | P = 0.437 |
| Diploma            | 10.91 (5.97) | 3.98 (2.62) | 12.49 (9.63) | 10.04 (7.94) |
| Bachelor           | 2.41 (2.52) | 1.80 (1.67) | 3.31 (3.34) | 2.11 (3.23) |
| Postgraduate       | 4.48 (3.44) | 2.56 (1.96) | 1.00 (0.00) | 4.00 (0.00) |
| F = 78.725         | F = 22.766 | F = 48.382 | F = 40.767 |
| P = 0.00*          | P = 0.00* | P = 0.00* | P = 0.00* |

* P < 0.01

**P < 0.05
Table 5: Distribution of PTSD experiences based on the participants’ career history (N = 259).

| Variable                  | Re-experiencing | Avoidance | Arousal | Negative Thoughts and Beliefs | Overall Significant |
|---------------------------|-----------------|-----------|---------|-------------------------------|---------------------|
|                           | Mean (S.D.)     | Mean (S.D.) | Mean (S.D.) | Mean (S.D.) | P-value | P-value | P-value | P-value |
|                           | P-value         | P-value   | P-value | P-value | P-value | P-value | P-value | P-value |
| Years of experience       |                 |           |         |                   |                     |                     |                     |                     |
| less than three years     | 15.00 (0.00)    | 6.00 (0.00) | 17.00 (0.00) | 21.00 (0.00) | 70.00 (0.00) |                     |                     |                     |
| 3-6 years                 | 8.24 (4.92)     | 3.28 (2.023) | 8.52 (7.83) | 12.59 (5.98) | 44.42 (18.57) |                     |                     |                     |
| 7-10 years                | 5.84 (8.75)     | 2.57 (3.43) | 8.48 (12.06) | 13.63          | 42.25 (32.56) |                     |                     |                     |
| More than 10              | 8.35 (2.26)     | 3.33 (1.155) | 7.42 (5.86) | 11.48 (3.44) | 42.52 (10.13) |                     |                     |                     |
|                          | F= 11.660       | F= 9.794  | F= 5.412 | F= 8.319         | F= 52.333         |                     |                     |                     |
|                          | P= 0.00*        | P= 0.00*  | P= 0.00* | P= 0.00*         | P= 0.00*          |                     |                     |                     |
| Working place             |                 |           |         |                   |                     |                     |                     |                     |
| Government                | 4.67 (3.79)     | 1.92 (1.62) | 4.09 (2.80) | 3.87 (2.34) | 32.91 (7.63) |                     |                     |                     |
| Private                   | 9.55 (6.80)     | 3.92 (2.65) | 11.35 (10.23) | 9.12 (8.46) | 51.39 (26.20) |                     |                     |                     |
| Military                  | 6.90 (5.60)     | 2.60 (2.23) | 6.20 (7.94) | 4.70 (6.28) | 38.40 (19.75) |                     |                     |                     |
|                          | F= 17.726       | F= 19.586 | F= 19.728 | F= 15.946        | F= 19.593         |                     |                     |                     |
|                          | P= 0.00*        | P= 0.00*  | P= 0.00* | P= 0.00*         | P= 0.00*          |                     |                     |                     |
| Position                  |                 |           |         |                   |                     |                     |                     |                     |
| RN                        | 10.74 (7.65)    | 3.87 (3.23) | 11.94    | 9.68 (10.31) | 53.50 |                     |                     |                     |

iates
|              | (11.39) | (30.65) |
|--------------|---------|---------|
| In-charge    |         |         |
| 3.92 (4.76)  | 2.11 (2.08) | 6.72 (7.50) | 4.90 (4.36) | 35.45 (16.90) |
| Head-nurse   |         |         |
| 9.77 (2.94)  | 2.15 (0.37) | 10.76 (2.94) | 7.23 (1.84) | 47.92 (7.35) |
| Education    |         |         |
| 6.57 (.50)   | 4.00 (0.00) | 4.01 (3.50) | 5.29 (1.50) | 38.45 (4.00) |
| F=23.075     | F=11.566 | F=11.119 | F=8.081     | F=11.597     |
| P= 0.00*     | P= 0.00* | P= 0.00* | P= 0.00*    | P= 0.00*     |
|              |         |         |
| **Department**|         |         |
| Emergency    |         |         |
| 7.94 (6.12)  | 3.25 (2.43) | 8.95 (8.77) | 7.22 (7.11) | 45.11 (22.43) |
| Medical units|         |         |
| 7.76 (6.34)  | 3.17 (2.53) | 8.36 (9.14) | 7.07 (7.42) | 44.20 (23.33) |
| Surgical units|       |         |
| 8.36 (6.68)  | 3.30 (2.73) | 9.48 (9.73) | 7.79 (7.85) | 46.53 (24.75) |
| Critical units|        |         |
| 7.58 (6.98)  | 3.22 (2.74) | 8.50 (10.07) | 7.15 (8.46) | 44.18 (26.16) |
| Mental health units| |         |
| 8.12 (5.41)  | 3.11 (2.14) | 9.05 (7.55) | 6.76 (5.59) | 44.82 (18.81) |
| F=.094       | F= 0.029 | F= 0.089 | F= 0.081     | F= 0.075     |
| P= 0.984     | P= 0.998 | P= 0.986 | P= 0.988     | P= .0990     |

* P < 0.01
Table 6: Distribution of PTSD experiences based on the participants’ COVID-19–Related PTSD Case Exposure

|                  | Re-experiencing | Avoidance | Arousal | Negative Thoughts and Beliefs | Overall Significant |
|------------------|-----------------|-----------|---------|-------------------------------|---------------------|
|                  | Mean (S.D.)     | Mean (S.D.) | Mean (S.D.) | Mean (S.D.) | P-value | P-value | P-value | P-value | P-value |
| Does any of your family member or friends being suspected to COVID 19 infection? |                |           |         |                               |                     |
| Yes              | 11.60 (5.92)    | 4.59 (2.48) | 10.6 (11.97) | 9.37(10.13) | 53.62  (28.46) |
| No               | 5.87 (6.06)     | 2.26 (2.31) | 7.73 (7.50) | 5.91 (5.49) | 39.73  (19.88) |
| Don’t Know       | 6.00 (0.00)     | 4.00 (0.00) | 8.00 (0.00) | 7.00 (0.00) | 43.00  (0.00)  |
|                  | F= 29.098       | F= 30.886  | F= 3.079 | F= 6.309 | F= 10.522 |
|                  | P= 0.00*        | P= 0.00*   | P= 0.048 | P= 0.002* | P= 0.00* |
| Did your place work receive any COVID 19 cases? |                |           |         |                               |                     |
| Yes              | 6.95 (6.78)     | 2.62 (2.62) | 6.90 (9.54) | 5.93 (8.01) | 40.41  (24.74) |
| No               | 10.66 (3.71)    | 5.00 (0.822) | 14.33 (4.53) | 11.00 (3.29) | 58.00  (11.31) |
|                  | F= 17.932       | F= 52.359  | F= 35.410 | F= 24.935 | F= 31.059 |
|                  | P= 0.00*        | P= 0.00*   | P= 0.00* | P= 0.00* | P= 0.00* |
|                        | Yes          | No          |                |                |                |
|------------------------|--------------|-------------|----------------|----------------|----------------|
| **Were you in direct**  | 9.31 (6.64)  | 6.28 (5.59) | 9.32 (6.64)    | 6.28 (5.59)    | 9.05 (10.50)   |
| **contact with any**   | 9.05 (8.44)  | 8.49 (7.32) | 8.21 (8.44)    | 6.10 (5.93)    | 47.64 (25.84)  |
| **patient who is**     | 41.76 (19.87)| 41.76 (19.87)| 41.76 (19.87) | 41.76 (19.87)  |                |
| **confirmed of COVID** | F = 15.599   | F = 0.243   | F = 0.591      | F = 5.277      |                |
| **19?**                | P = 0.00*    | P = 0.622   | P = 0.622      | P = 0.02       |                |

|                        | Yes          | No          |                |                |                |
|------------------------|--------------|-------------|----------------|----------------|----------------|
| **Did you force any**  | 20.0 (0.00)  | 6.37 (4.95) | 8.00 (0.00)    | 2.62 (1.98)    | 28.0 (0.00)    |
| **type of quarantine?**| 24.0 (0.00)  | 6.37 (6.44) | 24.0 (0.00)    | 5.11 (4.71)    | 95.00 (0.00)   |
|                        | F = 218.82   | F = 325.76  | F = 212.40     | F = 464.20     | F = 361.3      |
|                        | P = 0.00*    | P = 0.00*   | P = 0.00*      | P = 0.00*      | P = 0.00*      |

* P < 0.01