AMERICAN PSYCHOLOGICAL ASSOCIATION
GREEN CROSS Academy of Traumatology
Traumatology

ISSN: 1085-9373
2021, Vol. 27, No. 4, 413–418
https://doi.org/10.1037/trm0000320

Traumatic Stress Among Frontline American Nurses During the COVID-19 Pandemic: A Survey Study

Joanna M. Hernandez[1], Kristen Munyan[1], Erin Kennedy[1], Patrick Kennedy[2], Kelly Shakoor[2], and Jacob Wisser[1]
[1] School of Nursing, Oakland University
[2] School of Nursing, University of Michigan

Nurses working on the front lines of the COVID-19 pandemic are at inherent risk of traumatic stress working in understaffed, poorly equipped, high acuity environments. Post-traumatic stress disorder (PTSD) may develop following exposure to trauma or stress associated with depressive symptoms, flashbacks, and mood disturbance. The purpose of this study was to assess the prevalence of traumatic stress among American frontline nurses following the initial COVID-19 surge in the United States during March 2020 using the Trauma Screening Questionnaire. This cross-sectional survey study was distributed via social media in May 2021 following the initial COVID-19 surge. The (TSQ) was selected for its strong psychometric performance in previous studies and high clinical reliability in detecting those at risk for PTSD. Results: Out of the 298 acute care nurses practicing in the United States who participated in the survey, 58.7% had a positive score of greater than 6 indicating the risk of PTSD. Front line nurses who provided care during the initial COVID-19 surge reported high levels of traumatic stress and demonstrated the risk of developing PTSD as measured by the TSQ. Health systems that employ frontline nurses must increase screening for mental health ramifications during the global pandemic.

Keywords: nursing, acute care, COVID-19, mental health, posttraumatic stress disorder

Despite the collective trauma experienced by frontline nurses during the COVID-19 pandemic in the United States, there is minimal research on the impact of this traumatic stress on nurses or their risk of developing posttraumatic stress disorder (PTSD) among American nurses. PTSD is a disorder in which individuals experience intense thoughts or feelings related to an experience after the trauma and can develop after a shocking, scary, or dangerous event (National Institute of Mental Health, 2019). Individuals with PTSD may experience flashbacks, feel sadness, anger, or fear, and may feel detached from others. In the United States, bedside nurses provide the overwhelming majority of direct patient care and have witnessed the impact of COVID-19 on their patients and communities. The stressors of working during this pandemic are still not understood.

As of late November 2020, the global death toll from COVID-19 reached 1,412,223, with 18% (259,976) from the United States. The confirmed international cases reached 59,905,468, and the United States accounted for 21% (12,598,660) of the total number (American Journal of Managed Care, 2020). Beyond the loss of life, nurses have worked in understaffed and undersupplied conditions. A July 2020 survey of over 21,000 nurses revealed that 87% were required to reuse disposable personal protective equipment (PPE) due to shortage, and only 24% felt their employers were providing a safe work environment (National Nurses United, 2020). Nurse respondents to this survey also revealed a third of nurses were fearful for their safety, and 43% reported fears of infecting family members (National Nurses United, 2020).

A current understanding of frontline nurse's mental health is needed to assess the impact of this most recent pandemic and consider resources required to ensure the stability of the nursing workforce's mental health. The purpose of this study was to employ a validated traumatic stress screening tool, the Trauma Screening Questionnaire (TSQ), to assess the prevalence of traumatic stress among frontline nurses following the initial COVID-19 surge in the United States in March 2020. This effort intended to serve as an initial source of understanding of the long-term impact of the collective trauma of frontline service during the pandemic.

Background

Many other studies have reported traumatic stress and PTSD among health care workers serving during outbreaks of infectious disease. Studies have included aims such as identifying the prevalence of traumatic stress in specific health care populations and examining risk factors for poor mental health outcomes. A variety of screening instruments have been used to assess poor mental health outcomes. In a Portuguese study, 767 nurses during the pandemic noted higher levels of depression, anxiety, and stress than the general population (Sampaio et al., 2020). Shahrour and Dardas (2020) conducted a quantitative, cross-sectional, comparative descriptive study of 448 Jordanian nurses and described a relationship between working during COVID-19 and significant psychological distress.

This article was published Online First August 16, 2021.
Joanna M. Hernandez https://orcid.org/0000-0003-1072-5518
We acknowledge Gary Moore from Oakland University for his statistical support and assistance with project development.
Correspondence concerning this article should be addressed to Joanna M. Hernandez, School of Nursing, Oakland University, 433 Meadow Brook Road, 3046 Human Health Building, Rochester, MI 48309, United States. Email: jhernandez@oakland.edu

A cross-sectional study by Wang et al. (2020) used the PTSD Checklist–Civilian Version to determine the severity of PTSD symptoms in 202 nurses and found 16.83% had some degree of PTSD. Female nurses who have low job satisfaction were more likely to have a higher level of PTSD. Bell and Wade (2020) completed a rapid review, meta-analysis, and living meta-analysis of studies using validated measures from previous infectious disease outbreaks. Findings included that staff who were conscripted, not willing, or had not volunteered for high-exposure roles reported poor mental health outcomes. Additionally, health care providers who saw their colleagues infected reported this as a particular source of distress. Being quarantined after exposure was a predictor of psychological distress and poor mental health.

Kisely et al. (2020) performed a rapid review meta-analysis examining the psychological effects of clinicians during a novel virus outbreak and the measures used to manage stress and psychological distress. Out of the 59 articles reviewed, eight focused on COVID-19. They found several common individual, service, and societal factors that increase the risk of poor psychological outcomes. Individual factors included increased contact with affected patients, having medical comorbidities, less clinical training, having mental health distress or disorders, and substance abuse. Service factors included the perception of inadequate training or organization support, a lack of confidence in infection control, and compensation. Societal factors included stigma against hospital workers.

Di Tella et al. (2020) identified an increased correlation between females and posttraumatic stress symptoms. This cross-sectional study explored the psychological impact of COVID-19 on 145 Italian health care workers including 72 medical doctors and nurses. The findings demonstrate that health care providers working with COVID-19 patients had higher depressive symptoms and posttraumatic stress symptoms than those who do not work with these patients.

Generally, there is little currently known regarding the prevalence or impact of traumatic stress among frontline COVID-19 nurses in the United States. The limited body of evidence available has identified COVID-19 frontline nurses to be at greater risk for complications of traumatic stress. A greater understanding of the prevalence of traumatic stress among American nurses is needed.

Method

Design

This cross-sectional survey study was conducted using a secure online survey distribution via social media. To measure traumatic stress, the TSQ was used. The TSQ was selected for its strong psychometric performance in previous studies and high clinical reliability in detecting those at risk for PTSD. The tool is publicly available without cost. As the researchers wished to assess traumatic stress related to working during the COVID-19 surge, and the scale used is considered optimal in sensitivity at 3 to 4 weeks following the traumatic event, it was determined that the survey would be administered in a single week's time frame, with each respondent answering once.

Research Question

This inquiry aimed to employ a validated traumatic stress screening tool, the TSQ, to assess the prevalence of traumatic stress among American frontline nurses following the initial COVID-19 surge in the United States in March 2020.

Sample

Participants were recruited from social media groups created for nursing professionals working during the COVID-19 surge. Facebook was used as the platform, with the group search function used to locate relevant groups. Before posting about the survey in any group, the investigators requested permission from the group's administrators. The survey link was then posted to the group page and subsequently shared by group participants without the prompting of the research team. This process led to a heavy distribution of participants in the Upper Midwest region.

Inclusion/Exclusion Criteria

Inclusion criteria for participation included licensed practical nurses or registered nurses currently working in an acute care setting, over 18 years of age, and English speaking. Exclusion criteria included licensed practical nurses or registered nurses working in nonacute (nonhospital) sites and the inability to read/understand English.

Institutional Review Board Approval

Institutional Review Board exempt status determination was obtained through Oakland University. An information sheet was embedded within the first page of the survey, allowing participants to click on a statement affirming their consent to continue with the research or to discontinue their participation.

Results

Sample Characteristics

A total of 400 participants opened the survey, $n = 298$ agreed to participate, and completed the survey items. Results were analyzed in aggregate, using SPSS. Of the participants who elected to divulge their gender, the majority identified as female (96.7%). There were 298 patients, 237 females, seven males, 54 unknown, within the age range of 22–63. The majority of participants were White, with only four Black, one American Indian, four Asian, and nine others not specified.

Findings

On the TSQ, the participants' mean total score was 5.88, the median was 6.0, and mode 7.0. In clinical practice, 6 is considered a "positive" screening and would prompt a clinician to perform diagnostic interviewing for potential PTSD. Of the total scores, 185 of the 298 (58.7%) were positive scores. Table 1 displays total score frequency data.

The most common positive findings were as follows: upsetting thoughts or memory about the event that have come into your mind against your will (mean .75), feeling upset by reminders of the event (mean .71), difficulty falling or staying asleep (mean .73), and heightened awareness of potential dangers to yourself/others (mean .74). Item analysis is presented in Table 2. An interitem matrix of correlations was conducted using Pearson's tests and demonstrated only one

Table 1
TSQ Total Score Frequency Table

Valid	Frequency	Percent	Valid percent	Cumulative percent
0.00	12	2.9	4.0	4.0
1.00	12	2.9	4.0	8.1
2.00	14	3.4	4.7	12.8
3.00	20	4.9	6.7	19.5
4.00	33	8.1	11.1	30.5
5.00	32	7.8	10.7	41.3
6.00	37	9.0	12.4	53.7
7.00	45	11.0	15.1	68.8
8.00	39	9.5	13.1	81.9
9.00	26	6.4	8.7	90.6
10.00	28	6.8	9.4	100.0
Total	298	72.9	100.0	
Missing system	111	27.1		
Total	409	100.0		

Note. TSQ = Trauma Screening Questionnaire.

significant positive relationship between the items "upsetting thoughts of memory of the event that have come into your mind against your will" and "feeling upset by reminders of the event" at $r = .603$. No inverse or negative correlations were noted between items of the TSQ. Item correlations are presented in Table 3.

Additionally, the most common positive items were related to symptoms considered characteristic clinical presentation of PTSD. It is important to note that this instrument is not diagnostic of PTSD. PTSD is diagnosed using clinical interviewing per the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (American Psychiatric Association, 2013). The instrument did exhibit internal validity with an acceptable Cronbach's α (.776) for the detection of traumatic stress.

Discussion

Congruence With Previous Studies

This study's findings varied in congruence with published studies of traumatic stress among nurses serving during the COVID-19 pandemic. Of participants, 58.7% had a positive score on the TSQ, indicating risk for PTSD. For the health system, this is troubling, as nurse stress has been identified as a significant factor in retention. In July 2020, a survey of British nurses found that 36% of respondents reported they were thinking of leaving the nursing profession, an increase from 27% of respondents in the previous year, citing the increased stress of the pandemic as a contributing factor (Ford, 2020). Although other studies have examined stress in frontline nurses, these findings are new in that they quantify traumatic stress in American nurses using a well-validated instrument. Understanding the extent of traumatic stress experienced by frontline nurses is a necessary step in implementing postpandemic strategies for nurse retention.

It has been projected by the United States Bureau of Labor that an additional 11 million nurses will be needed by 2022 to avoid a nursing shortage (Ford, 2020). There are several reasons for this shortage including the aging population and nursing workforce, nurse burnout, violence in the health care setting, and poor staffing ratios (Haddad et al., 2020). Furthermore, the cost of nursing turnover is high. The average cost for training a bedside nurse is between $37,700 and $58,400. Nursing turnover costs the health system an average of $6.6 million (Nursing Solutions Inc, 2016).

Similarly published studies regarding mental health during the pandemic found that females have a higher propensity of PTSD (Cardeña et al., 2000; Di Tella et al., 2020). As the United States Bureau of Labor Statistics (2020) current report indicates that 88.9% of nurses in the United States identify as female, gender and mental health is important to explore. As women have a higher propensity to attempt suicide than men (Hedegaard et al., 2018), it is important to understand that the severity and type of response to trauma can vary from gender. No comparisons were made between males and females regarding positive screening rates due to low male nurse participation in this study. Considering this limitation, a follow-up study with an increased number of American male participants could better help to understand the unique risk of male nurses related to the psychological sequelae of COVID-19 pandemic frontline service. Previous research has found that men may feel weak to show feelings of despair because of social norms or pressure, resulting in symptoms of depression resembling anger or irritability (Leach et al., 2008). Kisely et al. (2020) found the highest likelihood of psychological distress to be in young females with children. This study did not question the participants about having children to correlate these findings. Findings from Shahrour and Dardas (2020), using the Stanford Acute Stress Reaction Questionnaire, did have similar

Table 2
Item Analysis

item	*M*	*SD*	*N*
Upsetting thoughts or memory about the event that have come into your mind against your will	.75	.435	298
Upsetting dreams about the event	.43	.496	298
Acting or feeling the event were happening again	.43	.495	298
Feeling upset by reminders of the event	.71	.454	298
Body reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event	.57	.496	298
Difficulty falling or staying asleep	.73	.442	298
Irritability or outbursts of anger	.57	.496	298
Difficulty concentrating	.64	.481	298
Heightened awareness of potential dangers to yourself/others	.74	.438	298
Being jumpy or being startled at something unexpected	.32	.467	298

Table 3
Interitem Correlation Matrix

item	Upsetting thoughts or memory about the event that have come into your mind against your will	Upsetting dreams about the event	Acting or feeling the event were happening again	Feeling upset by reminders of the event	Body reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event	Difficulty falling or staying asleep	Irritability or outbursts of anger	Difficulty concentrating	Heightened awareness of potential dangers to yourself/others	Being jumpy or being startled at something unexpected
Upsetting thoughts or memory about the event that have come into your mind against your will	1.000	.300	.359	.603	.372	.195	.227	.307	.241	.231
Upsetting dreams about the event	.300	1.000	.363	.313	.315	.352	.211	.226	.141	.279
Acting or feeling the event were happening again	.359	.363	1.000	.444	.282	.133	.219	.207	.152	.182
Feeling upset by reminders of the event	.603	.313	.444	1.000	.390	.205	.161	.249	.182	.134
Body reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event	.372	.315	.282	.390	1.000	.139	.309	.340	.216	.244
Difficulty falling or staying asleep	.195	.352	.133	.205	.139	1.000	.166	.295	.097	.166
Irritability or outbursts of anger	.227	.211	.219	.161	.309	.166	1.000	.363	.165	.307
Difficulty concentrating	.307	.226	.207	.249	.340	.295	.363	1.000	.197	.317
Heightened awareness of potential dangers to yourself/others	.241	.141	.152	.182	.216	.097	.165	.197	1.000	.256
Being jumpy or being startled at something unexpected	.231	.279	.182	.134	.244	.166	.307	.317	.256	1.000

results in their survey of frontline health care workers with 64% above the cutoff point, indicating risk for PTSD.

Situational Context

In interpreting the results of this study, the context is important to consider, especially given the impact of timing on the sensitivity and performance of the TSQ instrument. Many factors may have contributed to this study having one of the highest positivity rates reported. Considerations such as geographic location, the exponential growth of COVID-19 incidence rates at this time, lack of PPE and other medical equipment, and an overall knowledge deficit regarding the management of this novel virus may be contributing variables. In May 2020, the Center for Disease Control and Prevention (CDC) began identifying counties with increasing COVID-19 incidence (hotspots) to understand transmission dynamics better and to offer support to the affected health departments (Oster et al., 2020). Oster et al. (2020) found that no U.S. counties met hotspot criteria during January 22–March 7, 2020; however, during March 8–July 15, 2020, 818 counties met hotspot criteria for greater than or equal to one day, with the peak occurring in early April 2020. By May 2020, 8–11% of all counties in the four U.S. census regions met hotspot requirements. This study's participants completed the TSQ during the exponential increase of incidence in the Midwest region.

Another possible contributing factor contributing to the high TSQ scores of this study was access to PPE. Shortages of supplies, a significant problem in the early weeks of the pandemic, have eased over time. This study determined many nurses were reusing or extending the use of disposable equipment. As of May 2020, 87% of nurses reported having to reuse a single-disposable mask or N95 respirator, and 27% of nurses said they had exposure to a COVID-19 patient without wearing appropriate PPE (National Nurses United, 2020).

The early mortality rates of the novel coronavirus are also a possible contributing factor to positive TSQ scores. Horwitz et al. (2020) explored adjusted mortality (in-hospital death or discharge to hospice care) from March through August 2020 at a three-hospital health system in New York with peak hospitalization occurring from late March into mid-April, accounting for 53% of the admissions during this time. Among 5,121 hospital admissions, adjusted mortality dropped each month from 25.6% in March to 7.6% in August (Horwitz et al., 2020). This incremental improvement in patient outcomes is likely due to a combination of various components such as pharmacologic treatments (such as corticosteroid use and Remdesivir), nonpharmacologic treatments (such as prone positioning ventilated patients), societal awareness (social distancing and mask-wearing), and over earlier recognition and intervention. The decrease in hospital admissions and mortality rates is raising hope that treatments and interventions have improved (Horwitz et al., 2020).

Implications for Practice

The findings of this work reveal a high prevalence of traumatic stress among frontline nurses during the COVID-19 pandemic surge, as detected by the TSQ. The TSQ is a clinically reliable screening measure and is considered an appropriate initial screening for PTSD. With 58.7% of nurse participants having had a positive score on the TSQ in this survey study, the authors believe additional research and increased awareness of nurse mental health in the aftermath of the COVID-19 pandemic would be beneficial.

Findings of this study and others suggest primary care physicians caring for nurses who have served on the frontline during the COVID-19 pandemic should engage in mental health screening during routine visits. Although this study and others have employed the TSQ, screening through other screening instruments, such as depression and anxiety screening tools, may help identify comorbid psychological conditions commonly associated with PTSD. Engaging in trauma-informed provider–patient relationships with nurses seeking health care following COVID-19 service is imperative. Health systems should consider providing training for clinicians with the potential to treat frontline workers of all disciplines.

The available literature and findings of this work identify that nurses who work in acute care, providing care for COVID-19 patients, are at the frontline of the pandemic and at high risk of adverse mental health effects. Danella et al. (2017) found that nurses suffering the effects of PTSD tend to have decreased job satisfaction, increased burnout, and increased turnover. As COVID-19 continues to present a major challenge to health systems globally, a repeat query may provide valuable insight about present mental health concerns, nurse resilience with the ongoing crisis, and disparities among participant groups. These data may also have implications for health systems as they seek to retain fatiguing nurses exposed to traumatic stress and may be looking to leave the profession due to their trauma. Finally, future research should include response to different mitigation measures taken to decrease PTSD in nursing. As Kisely et al. (2020) found in their study, having frequent, short breaks, time off, supportive teams, positive feedback, adequate PPE, and access to psychological interventions may help mitigate PTSD symptoms. Information about protective factors such as these, in addition to data regarding traumatic stress, would provide increased understanding of the impact of working conditions on nurse mental health.

Limitations

Limitations of this work include the use of social media for subject recruitment. Social media was the selected sampling method due to the time-sensitive nature of the TSQ and the rapid nature of data acquisition when using social media. This sample's homogeneity is consistent with that of other social media studies, which may impose substantial limitations on data generalizability. Disparities in race were not explored due to the underrepresentation of minorities among the convenience sample. The ability to analyze demographic factors is important in planning future research on the impact of the COVID-19 pandemic on nurse mental health. Minority nurses, including persons of color and males, may have different experiences or symptoms than young, Caucasian female nurses related to their risk.

Social media, as a sampling method, also prevents participant identity validation. Though there is a screening process to the survey, it must be acknowledged that there are threats to data validity without secondary validation of participant identity. Additionally, the limited sample size compared with the larger studies presents constraints on generalizability.

Conclusion

The mental health of nurses is paramount to providing safe, patient-centered care. The findings of this work provide an initial report of the prevalence of traumatic stress among American nurses following frontline service during the COVID-19 pandemic. Despite the limited size and homogeneity of the sample, this study supports previous findings that nurses in an acute care setting during outbreaks of infectious disease are at increased risk of experiencing traumatic stress, increasing their risk of developing PTSD. Health care systems should aim to find methods to retain and support their staff members who may be struggling to work in the acute care environment post-COVID due to complications of traumatic stress. Additionally, primary care clinicians caring for these nurses in the aftermath of COVID-19 should screen for PTSD in nurses and appropriately refer for treatment as necessary. Additional study of prevalence and long-term impact of traumatic work experiences related to COVID-19 pandemic service with the inclusion of a larger and more diverse nursing population is recommended for future research.

References

American Journal of Managed Care. (2020). *A timeline of COVID-19 developments in 2020*. https://www.ajmc.com/view/a-timeline-of-covid19-developments-in-2020

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*. American Psychiatric Publishing.

Bell, V., & Wade, D. (2021). Mental health of clinical staff working in high-risk epidemic and pandemic health emergencies a rapid review of the evidence and living meta-analysis. *Social Psychiatry and Psychiatric Epidemiology*, *56*(1), 1–11. https://doi.org/10.1007/s00127-020-01990-x

Cardeña, E., Koopman, C., Classen, C., Waelde, L. C., & Spiegel, D. (2000). Psychometric properties of the Stanford Acute Stress Reaction Questionnaire (SASRQ): A valid and reliable measure of acute stress. *Journal of Traumatic Stress*, *13*(4), 719–734. https://doi.org/10.1023/A:1007822603186

Danella, N., Hamilton, S., & Heinrich, C. (2017). Posttraumatic stress disorder in critical care nurses. *Nursing Critical Care*, *12*(3), 40–46. https://doi.org/10.1097/01.CCN.0000515980.94246.40

Di Tella, M., Romeo, A., Benfante, A., & Castelli, L. (2020). Mental health of healthcare workers during the COVID-19 pandemic in Italy. *Journal of Evaluation in Clinical Practice*, *26*(6), 1583–1587. https://doi.org/10.1111/jep.13444

Ford, M. (2020, July 17). "Even more" nurses considering quitting the profession - survey reveals. *Nursing Times*. https://www.nursingtimes.net/news/workforce/even-more-nurses-considering-quitting-the-profession-survey-reveals-17-07-2020/

Haddad, L. M., Annamraju, R., & Toney-Butler, T. J. (2020). *Nursing shortage: StatPearls*. StatPearl Publishing. https://www-ncbi-nlm-nih-gov.huaryu.kl.oakland.edu/pubmed/29630227

Hedegaard, H., Curtin, S. C., & Warner, M. (2018). *Suicide mortality in the United States, 1999–2017. Center for Disease Control*. https://www.cdc.gov/nchs/data/databriefs/db330-h.pdf

Horwitz, L., Jones, S. A., Cerfolio, R. J., Francois, F., Greco, J., Rudy, B., & Petrilli, C. M. (2020). Trends in Covid-19 risk-adjusted mortality rates in a single health system. *medRxiv*. Advance online publication. https://doi.org/10.1101/2020.08.11.20172775

Kisely, S., Warren, N., McMahon, L., Dalais, C., Henry, I., & Siskind, D. (2020). Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: Rapid review and meta-analysis. *British Medical Journal*, *369*, Article m1642. https://doi.org/10.1136/bmj.m1642

Leach, L. S., Christensen, H., Mackinnon, A. J., Windsor, T. D., & Butterworth, P. (2008). Gender differences in depression and anxiety across the adult lifespan: The role of psychosocial mediators. *Social Psychiatry and Psychiatric Epidemiology*, *43*(12), 983–998. https://doi.org/10.1007/s00127-008-0388-z

National Institute of Mental Health. (2019). *Posttraumatic stress disorder*. https://www.nimh.nih.gov/health/topics/post-traumatic-stress-disorder-ptsd/index.shtml

National Nurses United. (2020). *Nursing COVID-19 Surveys*. https://www.nationalnursesunited.org/covid-19-survey

Nursing Solutions Inc. (2016). *2016 National healthcare retention and RN staffing report*. Nursing Solutions, Inc. https://avanthealthcare.com/pdf/NationalHealthcareRNRetentionReport2016.pdf

Oster, A. M., Kang, G. J., Cha, A. E., Beresovsky, V., Rose, C. E., Rainisch, G., Porter, L., Valverde, E. E., Peterson, E. B., Driscoll, A. K., Norris, T., Wilson, N., Ritchey, M., Walke, H. T., Rose, D. A., Oussayef, N. L., Parise, M. E., Moore, Z. S., Fleischauer, A. T., . . . Villanueva, J. (2020). Trends in number and distribution of COVID-19 hotspot counties—United States, March 8–July 15, 2020. *Morbidity and Mortality Weekly Report*, *69*(33), 1127–1132. https://doi.org/10.15585/mmwr.mm6933e2

Sampaio, F., Sequeira, C., & Teixeira, L. (2020). Nurses' mental health during the covid-19 outbreak: A cross-sectional study. *Journal of Occupational and Environmental Medicine*, *62*(10), 783–787. https://doi.org/10.1097/JOM.0000000000001987

Shahrour, G., & Dardas, L. A. (2020). Acute stress disorder, coping self-efficacy and subsequent psychological distress among nurses amid COVID-19. *Journal of Nursing Management*, *28*(7), 1686–1695. https://doi.org/10.1111/jonm.13124

United States Bureau of Labor Statistics. (2020). *Labor force statistics from the current population survey*. https://www.bls.gov/cps/cpsaat11.htm

Wang, Y. X., Guo, H. T., Du, X. W., Song, W., Lu, C., & Hao, W. N. (2020). Factors associated with post-traumatic stress disorder of nurses exposed to corona virus disease 2019 in China. *Medicine*, *99*(26), Article e20965. https://doi.org/10.1097/MD.0000000000020965

Received January 13, 2021
Revision received February 26, 2021
Accepted March 5, 2021 ■