Impact of Secondary Traumatic Stress from COVID-19 on Nurses

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Introduction

- The SARS-CoV-2 (COVID-19) pandemic presses unrelentingly on healthcare systems as nearly 80 million people worldwide have become infected (World Health Organization, 2020).
- Psychiatric professionals warn about the potential impact of the pandemic on healthcare providers' mental health (Reger et al., 2020).
- Nurses witness patient suffering and increased deaths, while visitors, including family, are restricted.
- Nurses are affected by the scarcity of resources while coping with the risk of contracting COVID-19 or transmitting the disease to their families.
- Secondary traumatic stress (STS) is a potentially impairing response on providers working with patients who have exposure to traumatic stressors (Sprang, Ford, Kerig, & Bride, 2019).
- STS encompasses intrusive thoughts, avoidance, and arousal symptoms resulting from witnessing and assisting others who are experiencing traumatic events as part of a professional relationship (Bride et al., 2004)
- Little is known about how STS impairs nurses.
- STS interferes with nurses carrying out their work responsibilities and with their family life (Günüşen et al., 2018).
- The symptoms of STS parallel the psychiatric diagnoses of Acute Stress Disorder (ASD) and Posttraumatic Stress Disorder (PTSD) (APA, 2013).
- Nurses working on the front lines of the COVID-19 response may be especially vulnerable to developing STS or other psychological conditions with potential effects on their work and other life domains.
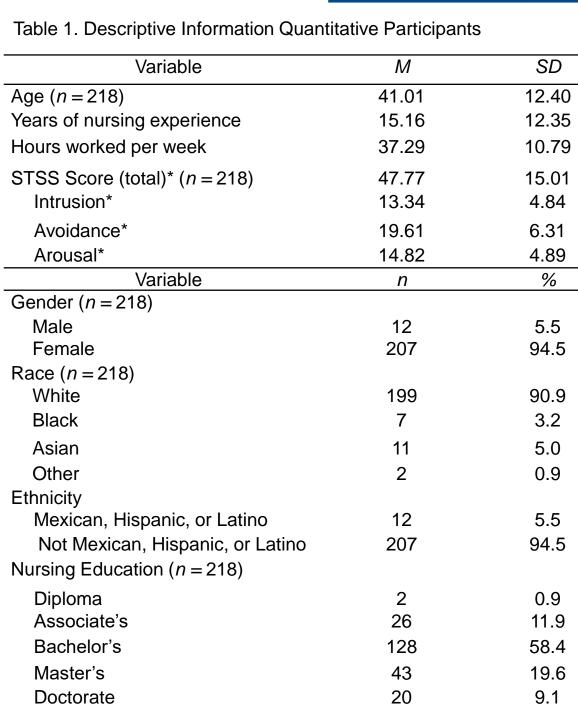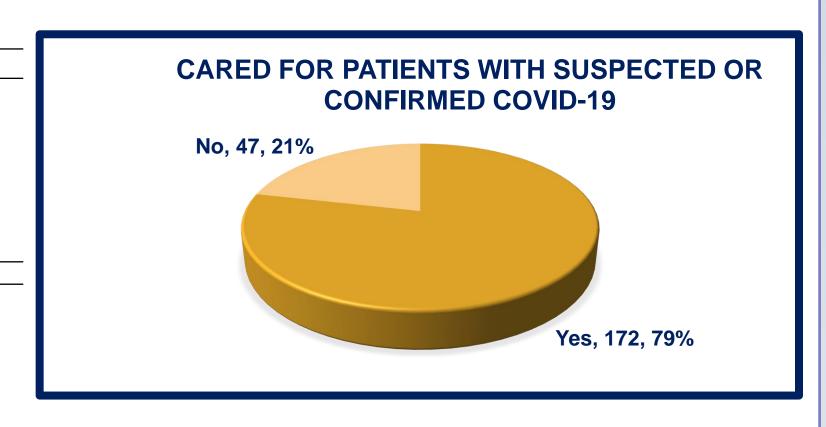
Purpose

We aimed to: (1) determine preliminary evidence of prevalence and severity of STS of nurses working during the pandemic, (2) compare the relationship between STS and functional impairment between nurses caring for patients with COVID-19 and those who did not, and (3) qualitatively explore the experience of nurses working with patients with COVID-19.
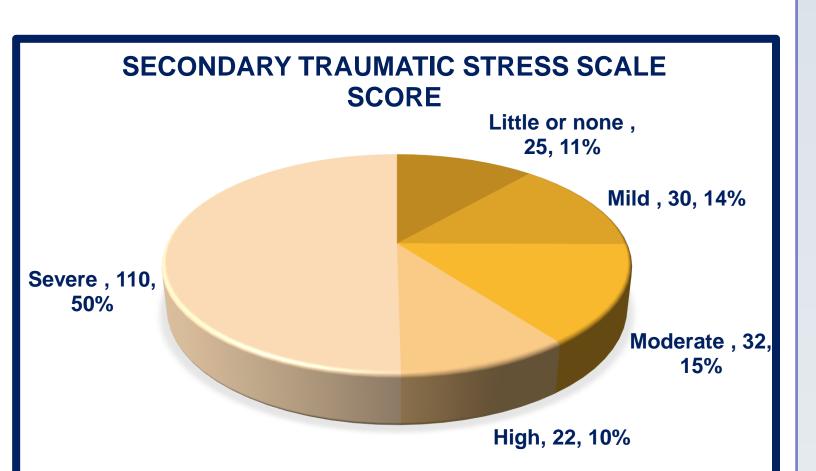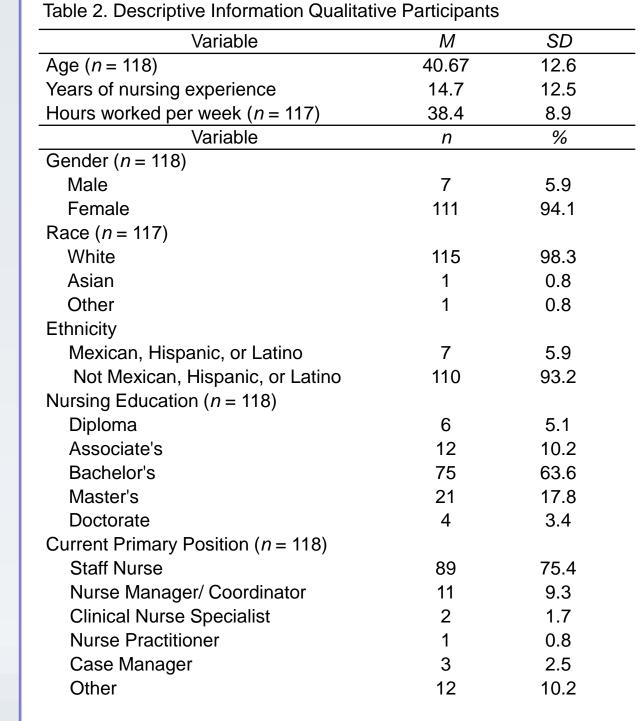
Methods

- An online, anonymous cross-sectional survey was distributed in July 2020 and November 2020 and included demographics, mental health screening questions, a functional impairment measure, and an open-ended question.
- After obtaining approval from the University IRB, the survey used snowball sampling via social media and posting a survey link to the American Association of Critical Care Nurses *Participate in Research Studies* webpage.
- The Secondary Traumatic Stress Scale (STSS) (Bride et al., 2004) was used to measure STS; the STSS is valid and reliable (Kellogg et al., 2018; Ting et al., 2005).
- The Brief Inventory of Psychosocial Functioning (B-IPF) was used to measure functional impairment; the B-IPF is valid and reliable (Kleiman et al., 2020; Marx et al., 2019).
- The Distracted Practice Scale (DPS) was used to measure distracted practice; the DPS is valid and reliable (L. D'Esmond, May 17, 2020).
- Quantitative data were analyzed using hierarchical regression for each of the outcome measures (DPS and B-IPF scores).
  - The first step in the regressions included gender, education, the average number of hours worked per week, number of years as a nurse, and if the respondent cared for patients with confirmed COVID-19.The second step added STSS scores.
- Qualitive data were collected in response to the question: *"Please share a personal experience with a COVID patient, including the circumstances surrounding the event."*
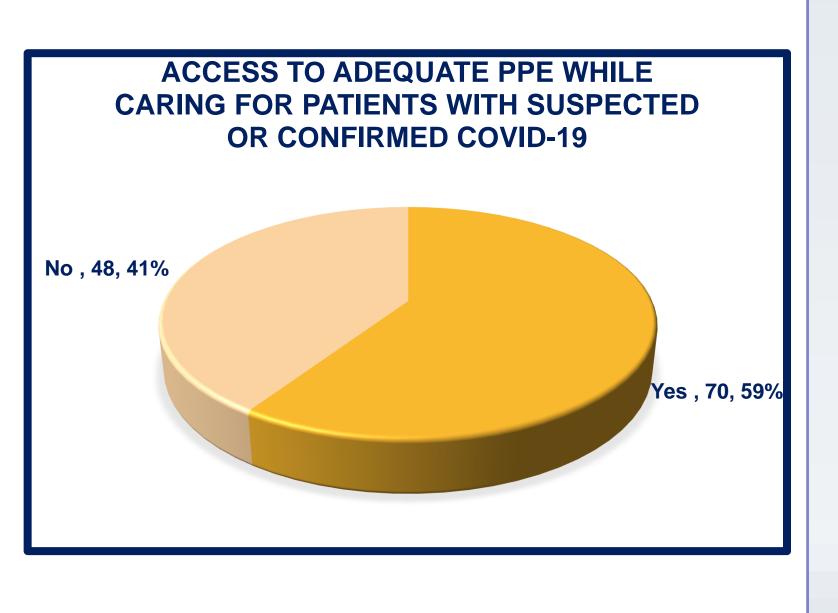 - Responses were evaluated using content analysis; triangulation was used to enhance validity.

Participant Demographics

Table 1. Descriptive Information Quantitative Participants

Variable	M	SD
Age (n = 218)	41.01	12.40
Years of nursing experience	15.16	12.35
Hours worked per week	37.29	10.79
STSS Score (total)* (n = 218)	47.77	15.01
Intrusion*	13.34	4.84
Avoidance*	19.61	6.31
Arousal*	14.82	4.89

Variable	n	%
Gender (n = 218)		
Male	12	5.5
Female	207	94.5
Race (n = 218)		
White	199	90.9
Black	7	3.2
Asian	11	5.0
Other	2	0.9
Ethnicity		
Mexican, Hispanic, or Latino	12	5.5
Not Mexican, Hispanic, or Latino	207	94.5
Nursing Education (n = 218)		
Diploma	2	0.9
Associate's	26	11.9
Bachelor's	128	58.4
Master's	43	19.6
Doctorate	20	9.1

Table 2. Descriptive Information Qualitative Participants

Variable	M	SD
Age (n = 118)	40.67	12.6
Years of nursing experience	14.7	12.5
Hours worked per week (n = 117)	38.4	8.9

Variable	n	%
Gender (n = 118)		
Male	7	5.9
Female	111	94.1
Race (n = 117)		
White	115	98.3
Asian	1	0.8
Other	1	0.8
Ethnicity		
Mexican, Hispanic, or Latino	7	5.9
Not Mexican, Hispanic, or Latino	110	93.2
Nursing Education (n = 118)		
Diploma	6	5.1
Associate's	12	10.2
Bachelor's	75	63.6
Master's	21	17.8
Doctorate	4	3.4
Current Primary Position (n = 118)		
Staff Nurse	89	75.4
Nurse Manager/ Coordinator	11	9.3
Clinical Nurse Specialist	2	1.7
Nurse Practitioner	1	0.8
Case Manager	3	2.5
Other	12	10.2

CARED FOR PATIENTS WITH SUSPECTED OR CONFIRMED COVID-19
No, 47, 21%; Yes, 172, 79%

SECONDARY TRAUMATIC STRESS SCALE SCORE
Little or none, 25, 11%; Mild, 30, 14%; Moderate, 32, 15%; High, 22, 10%; Severe, 110, 50%

ACCESS TO ADEQUATE PPE WHILE CARING FOR PATIENTS WITH SUSPECTED OR CONFIRMED COVID-19
No, 48, 41%; Yes, 70, 59%

Quantitative Results

Table 3. Regression Model Results

Variable	Distracted Practice				Functional Impairment			
	ΔR^2	B	SE B	β	ΔR^2	B	SE B	β
Step 1	0.09**				0.10***			
Gender		0.03	0.15	0.01		-0.45	1.17	-0.01
Education		-0.06	-0.04	-0.07		-2.46	1.58	-0.09
Years as a nurse		0.01	0.01	0.06		0.04	0.11	0.23
Average hours worked/week		-0.01	0.01	-0.07		0.02	0.12	0.01
Cared for patients with COVID-19		-0.05	0.08	-.001*		-0.14	3.03	-0.01*
Step 2	0.36**				0.28***			
STSS		0.03	0.02	0.68***		-0.89	0.09	0.61***
	Full Model				Full Model			
	R^2=0.45, $F_{(6,212)}$=28.34, p<.001				R^2=0.39, $F_{(6,212)}$=23.89, p<.001			

Note. + Was significant in model without STSS, which suggests that STSS might mediate the relationship between treating patients with COVID-19 and functional outcomes; **p<.01; ***p<.001

- The model accounted for 45% of the variance in DPS scores $F_{(6,212)}$=28.34, p<.001.
- The model accounted for 39% of the variance in B-IPF scores $F_{(6,212)}$=23.89, p<.001.
- STSS scores accounted for a significant amount of variance in both DP and Functional Impairment scores. In fact, adding STSS to the models resulted in treating patients with COVID-19 to become non-significant in the final model, suggesting that STSS might might explain the relationship between treating patients with COVID-19 and functional outcomes.

Qualitative Results

Theme 1. Absence of Patient Family Presence and Need for Additional Support.

"It is a lot emotionally to be nurse, family, and clergy for patients."

Theme 2. Personal protective equipment (PPE) concerns regarding safety and how PPE impairs the nursing role.

"The stress is high, I'm terrified I'll make a mistake in PPE, and I'll get COVID, or I'll be too busy to notice the small changes in COVID patients, and they will tank."

Theme 3. Patient Death.

"I've pretty much tried to block them all out. We've only had two patients get off the vent. Nearly everyone has died."

Theme 4. Helplessness.

"It is so scary to watch them struggle to breathe and not be able to help them."

Theme 5. Lack of preparedness for the pandemic.

"We all worried how extensive our shortcomings were with language barriers, inexperience, lack of resources, etc. The patient was just the unfortunate combination of hoping we were doing enough, knowing we could have done better in different situations. It is a horrifying feeling to live through for months at a time."

Theme 6. Overwhelmed with the quantity of work.

"Oftentimes, I'd have to stay late or come in early to shifts when we were understaffed, and then come back in the following night."

Summary and Conclusions

- This study demonstrates challenges facing nurses during the pandemic.
- Moderate, high, or severe STS affects 75% of the nurses surveyed.
- STS may explain the relationship between treating patients with COVID-19 and impairment across multiple domains of life.
- Caring for patients with COVID-19 may distract the nurse and impact their work, relationships, friendships, socializing, parenting, education, and self-care.
- Qualitative findings reiterate challenges faced by nurses treating COVID-19 patients.
- There is a need for adequate personal and institutional support for nurses to prevent and treat distress associated with working with patients with COVID-19.
- Caring for patients with COVID-19 involves a direct risk to the nurse; thus, nurses may be experiencing symptoms of PTSD not STS.
- Overall, nurses working in the pandemic are experiencing symptoms of trauma, which may be worse for those providing direct care to COVID-19 patients.
- The results should be interpreted within the context of the following limitations.
  - Qualitative data were gathered using an online method where nurses wrote their responses to an open-ended question.
  - Nurses who were more impacted by COVID-19 may be more likely to complete the survey.
  - The sample was overwhelmingly White and female.
- Addressing the mental health of nurses is vital to the health of patients and the community.

References

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). American Psychiatric Association.
Bride, B. E., Robinson, M. M., Yegidis, B., & Figley, C. R. (2004). Development and Validation of the Secondary Traumatic Stress Scale. Research on Social Work Practice, 14(1), 27–35. https://doi.org/10.1177/1049731503254106
Günüşen, N. P., Wilson, M., & Aksoy, B. (2018). Secondary traumatic stress and burnout among Muslim nurses caring for chronically ill children in a Turkish hospital. Journal of Transcultural Nursing, 29(2), 146–154. https://doi.org/10.1177/1043659616689290
Kellogg, M. B., Dowling, J. S., Knight, M., & Crawford, S. L. (2018). Validating the Secondary Traumatic Stress Scale for Pediatric Nurses. Journal of Nursing Measurement, 26(3), E114–E126. https://doi.org/10.1891/1061-3749.26.3.E114
Kleiman, S. E., Bovin, M. J., Black, S. K., Rodriguez, P., Brown, L. G., Brown, M. E., Lunney, C. A., Weathers, F. W., Schnurr, P. P., Spira, J., Keane, T. M., & Marx, B. P. (2020). Psychometric properties of a brief measure of posttraumatic stress disorder–related impairment: The Brief Inventory of Psychosocial Functioning. Psychological Services, 17(2), 187–194. https://doi.org/10.1037/ser0000306
Marx, B. P., Schnurr, P. P., Lunney, C., Weathers, F. W., Bovin, M. J., & Keane, T. M. (2019). The Brief Inventory of Psychosocial Functioning (B-IPF). [Measurement instrument]. https://www.ptsd.va.gov.
Reger, M. A., Stanley, I. H., & Joiner, T. E. (2020). Suicide Mortality and Coronavirus Disease 2019—A Perfect Storm? JAMA Psychiatry, 77(11), 1093. https://doi.org/10.1001/jamapsychiatry.2020.1060
Ting, L., Jacobson, J. M., Sanders, S., Bride, B. E., & Harrington, D. (2005). The Secondary Traumatic Stress Scale (STSS): Confirmatory Factor Analyses with a national sample of mental health social workers. Journal of Human Behavior in the Social Environment, 11(3–4), 177–194. https://doi.org/10.1300/J137v11n03_09
World Health Organization. (2020, December 27). WHO Coronavirus Disease Dashboard. WHO Coronavirus Disease Dashboard. https://covid19.who.int/info

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