Cross-Sectional Analysis of Burnout, Secondary Traumatic Stress, and Compassion Satisfaction Among Emergency Nurses in Southern California Working Through the COVID-19 Pandemic

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Contribution to Emergency Nursing Practice

- Emergency nurses are at risk of burnout and compassion fatigue owing to the nature of the environment. The COVID-19 pandemic created uncertainty, changes in practice, and a lack of resources for health care providers.
- The findings of this paper are that current burnout and secondary traumatic stress scores for emergency nurses are moderately high whereas compassion satisfaction is moderately low. Nurses who work the midshift scored significantly higher for burnout and secondary traumatic stress than those working the day shift, whereas those with 2 children living at home scored significantly lower for compassion satisfaction than those with 1 child.
- Emergency nurses need continued support from those in leadership positions to decrease burnout and secondary traumatic stress while continually supporting compassion satisfaction. Department heads must support efforts to decrease negative components of nurses' professional quality of life with specific interventions.

Abstract

Objective: The purpose of this study was to assess burnout, secondary traumatic stress, and compassion satisfaction scores in emergency nurses after working through the COVID-19 pandemic using the Professional Quality of Life Scale version 5 and compare those scores with similar studies conducted before the pandemic.

Methods: A cross-sectional analysis of a descriptive survey including the Professional Quality of Life Scale version 5 questionnaire was sent to nurses working in the emergency department before 2021 from urban, adult, and pediatric receiving hospitals in Southern California. Results were analyzed to provide insight into the effect of the COVID-19 pandemic on the levels of burnout, secondary traumatic stress, and compassion satisfaction compared with prepandemic studies found in the literature using the same Professional Quality of Life Scale version 5 instrument.

Results: Mean subcategory scores were in the moderate range for burnout (25.6), secondary traumatic stress (24.5), and compassion satisfaction (38.7). Burnout scores for midshift nurses were found to be significantly higher than day shift nurses (mean difference 5, $P = .02$) as were secondary traumatic stress scores (mean difference 4.6, $P = .007$). In addition, compassion satisfaction subcategory scores in nurses with 1 child living at home were significantly higher than those with 2 (mean difference 6.7, $P = .02$).

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Discussion: The unnormalized mean findings were similar to prepandemic studies conducted using the same Professional Quality of Life Scale version 5 instrument indicating nurses are at risk of compassion fatigue. In addition, the scores from midshift nurses reflect increased burnout and secondary traumatic stress whereas nurses with 2 children had lower compassion satisfaction. This implies the need for leadership to proactively seek interventions to support nurses on each shift.

Key Words: Compassion fatigue; Burnout; Secondary traumatic stress; Emergency nurses; Resilience; Professional Quality of Life Scale

Introduction

Professional quality of life, as represented by the constructs examined using the Professional Quality of Life Scale version 5 (ProQOL), is made up of both positive and negative emotions that an individual feels while engaged in their position.[1] Emergency nurses experience unique daily stressors, including a multitude of patient presentations, traumatic events, chaotic environments, and a wide range of emotional encounters.[2] Nursing is emotionally, spiritually, and physically demanding; these demands and stressful encounters can lead to compassion fatigue, burnout, secondary traumatic stress, vicarious trauma, and a decrease in compassion satisfaction.[2-6] The ProQOL is a validated tool that measures 2 negative (burnout and secondary traumatic stress) affects and 1 positive (compassion satisfaction) affect, or feelings/emotions, that are part of a worker's overall professional quality of life.[7]

The ProQOL defines burnout as one of the multiple elements in compassion fatigue.[7] Compassion fatigue and burnout have similar symptoms; however, they differ in cause. Compassion fatigue occurs because of the element of caring for people in a helping profession, whereas burnout is caused by workplace environments and is associated with the organization rather than the patients.[8] If a caregiver's stressors are caused by work conditions, scheduling conflicts, poor work environment, and leadership, this would classify as burnout.[8,9] Compassion fatigue occurs subtly and is progressive in nature. The signs may go unnoticed until the caregiver experiences a sudden onset of physical, emotional, and spiritual exhaustion.[9,10] The consequence of compassion fatigue is that the nurse's ability to show and feel compassion is decreased or absent. Nurses who are experiencing compassion fatigue may negatively affect patient outcomes and patient satisfaction owing to their emotional distress, inability to care, and low levels of efficiency. Compassion fatigue can be devastating to the nurse both personally and professionally, and early recognition and prevention are important.[8,11]

Secondary traumatic stress is a consequence of caring for people who have experienced trauma even though the nurse has not experienced the trauma personally.[8,11] Secondary traumatic stress describes various symptoms similar to those of posttraumatic stress disorder acquired through secondary exposure to trauma rather than a direct event.[12] Nurses with secondary traumatic stress experience similar symptoms of posttraumatic stress disorder, which include behavioral components such as irritability, anger, lack of sleep, and substance abuse problems.[8] Although secondary traumatic stress and vicarious trauma are often used interchangeably, they were independently developed by different research groups. Although secondary traumatic stress is defined by symptoms, vicarious trauma tends to focus on the potentially harmful changes that can occur in professionals dealing with graphic and/or traumatic material through clients and/or patients.[13]

Finally, compassion satisfaction is what nurses look to achieve by working with people. Many nurses enter the field to help people and improve patients' quality of life. Compassion satisfaction is the knowledge that the caregiver's work is making a positive impact on the patient's experience and meaningful connections are made.[14]

Immediately after the World Health Organization declared the COVID-19 a global pandemic on March 11, 2020, followed shortly after by the United States issuing a national emergency proclamation on March 13, 2020, the professional demands of emergency nurses were affected.[1-17] COVID-19, caused by the severe acute respiratory syndrome coronavirus 2, has caused additional stress, uncertainty, and fear in the health professional community, particularly including emergency nursing staff.[18-20] When nurses are exposed to unpredictable changes and stressful situations on a regular basis, they can experience anxiety and exhaustion, which can lead to decreases in job satisfaction and the quality of care they are able to provide.[21]

The concepts of compassion fatigue, burnout, secondary traumatic stress, vicarious trauma, and compassion satisfaction have been studied extensively in an array of settings including nursing departments. The overall goal of this project was to record and assess levels of burnout, secondary traumatic stress, and compassion satisfaction using the ProQOL questionnaire in emergency nurses employed in Southern California during the COVID-19 pandemic. The specific aims of this study were to:

1) Describe the sample population of emergency nurses

2) Summarize the ProQOL scores by subcategories (burnout, secondary traumatic stress, and compassion satisfaction)
3) Examine correlational relationships between the subcategory scores
4) Evaluate ProQOL subcategory scores by demographic, socio-related, and work-related characteristic compassion satisfaction

Methods

This study was designed as a descriptive observational study for emergency nurses at 3 Southern California acute care hospitals located in Torrance, Laguna Beach, and Mission Viejo where the authors of this article are employed. The registered nurses at the selected locations who met the inclusion criteria were invited to participate. The inclusion criteria were any registered nurse who was actively working on the unit and hired before January 2021. Qualified individuals were sent an anonymous survey to be completed via the organization's Research Electronic Data Capture instance.[22,23] Before the initiation of procedures, the study was reviewed by the organization's regional institutional review board and the research department and local administrative staff. Owing to the anonymous responses and a lack of intervention and follow-up, the institutional review board deemed the project exempt because it did not qualify as human subjects research; however, all system policies and procedures and good research practices were followed. Owing to the cross-sectional, hypothesis generation nature of this project, no power or sample size calculation was completed.

SURVEY TOOLS

The data collection survey included multiple demographic, socio-related, and work-related items:

  i. Years of experience as a nurse
 ii. Full-time employment status
iii. Current age range
 iv. Marital status
  v. Number of children living at home
 vi. Shift worked

Participant responses to these questions would serve as points of interest in further investigation of ProQOL scores.

The ProQOL is an open access tool available to assess burnout, secondary traumatic stress, and compassion satisfaction that has been used in numerous populations, including health care professionals, since its release in 2012.[7] High scores of burnout and secondary traumatic stress with low levels of compassion satisfaction are indicative of compassion fatigue in health care workers.[7] Although areas of concern with the scale's validity and reliability in nurses have been recently reported,[24,25] there is a documented lack of more adequate tools.[24,25] The scale is made up of 30 items which are "I"-statements regarding professional work that the user responds to via a 5-point Likert scale ranging from 1 = never to 5 = very often.[7] Scoring is completed by summing the values for all statements in each of the 3 subscales: compassion satisfaction (10 items), burnout (10 items), and secondary traumatic stress (10 items).[7] It is important to note that, when scoring the ProQOL, multiple burnout items are scored inversely.[7] Raw or unnormalized scores for each subcategory can be evaluated or transformed to a t-score where the sample mean is converted to 50 with the standard deviation set at 10.[7]

PROCEDURE

The survey was distributed via email, which included an attached flyer with a scannable QR code; the recruitment flyer was also posted in participating locations' break rooms. In the distribution phase, the nurses were informed as to why this survey was being conducted. The aims of the study were explicitly described to the nurses as an assessment of the baseline levels of burnout, compassion fatigue, compassion satisfaction, and secondary traumatic stress not only to compare the scores with prepandemic levels in similar studies but also to have knowledge for future interventions designed to help the staff and prevent burnout and compassion fatigue. Given that the ProQOL is a psychological test, it was important to inform the nurses that they were not being evaluated for any bad behavior or feelings and the responses would be anonymous.[7] Guidance for reporting the results of the study was derived from the Strengthening the Reporting of Observational Studies in Epidemiology checklist for cross-sectional studies.[26]

DATA ANALYSIS

Data were exported from Research Electronic Data Capture to Microsoft Excel for Mac version 16.5 for cleaning and coding. The results were then imported to IBM SPSS Statistics version 27 for further analysis.

For description of the study's participant population, all responding nurses were pooled and demographic, socio-related, and work-related items for the entire study population were described via frequency reporting. For analysis of each of the 3 ProQOL subcategories (burnout,

TABLE 1
Responder demographics (N = 50)

Characteristics	n	%
Hospital location		
Torrance	30	60
Mission Viejo	19	38
Laguna	1	2
Age range		
20-29 y	9	18
30-39 y	17	34
40-49 y	14	28
≥ 50 y	10	20
Years of experience, y		
≤ 2	9	18
3-5	10	20
6-10	13	26
> 10	18	36
FTE status		
Full time	44	88
Part time	4	4
Per diem	2	4
Shift worked		
Day shift	23	46
Mid-shift	10	20
Night shift	17	34
Marital status		
Single	16	32
Married	30	60
Divorced	3	6
Separated	1	2
No of children living in the home		
0	20	40
1	9	18
2	13	26
≥ 3	8	16

FTE, full time equivalent.

secondary traumatic stress, and compassion satisfaction), mean scores and standard deviations were calculated via results from all responding nurses; the mean scores were evaluated directly by the guidelines in the ProQOL manual.[7] All statistical analysis conducted had an alpha set < 0.05 as the cutoff for significance. Bivariate correlations between all of the subcategory scores were conducted and significant interactions reported using Pearson's correlation coefficient

(PCC). Using demographic, socio-related, and work-related characteristics as grouping factors, mean ProQOL subcategory scores were compared using a one-way analysis of variance (ANOVA) to assess differences between all groups. Owing to the unbalanced groups and exploratory nature of this post hoc analysis, any result with an alpha of < 0.1 was further examined via a Tukey test to examine potential between-group differences in mean subcategory scores.

SETTING AND CONTEXT

According to publicly available data from the Centers for Disease Control and Prevention, although the survey was open, the daily average of newly reported COVID-19 cases in the United States was 20,338 (SD = 7374.4, range 9094-35,655) whereas the state of California saw an average of 965.6 newly reported COVID-19 cases daily (SD 247.8, range 580-1440). COVID-19–related deaths were lower during the same time frame with the United States daily average being 445.8 (SD 132.6, range 228-662) and California at 19.7 (SD 5.6, range 12-35).[27]

Results

During a 26-day period, between May 13, 2021, and June 7, 2021, the survey was open, and 55 nurses responded with 50 completing the survey from 3 hospitals within the health care system. The response rate was calculated at 25% whereas 22.7% completed the survey (total nurses 220, Torrance 90, Mission Viejo 90, Mission Laguna 40).

The survey was sent out to 3 hospitals with the concentration of responses coming from Mission Viejo and Torrance. Responders varied in age, experience, and shifts, with age (82% were 30 years or older) and experienced (82% had at least 3 years of experience), and full-time workers (88%). The reported shifts being worked were split, with day shifters being the most common responders (46%) followed by night shift (34%) and midshift (20%). The majority of the study population were married (60%) and had at least 1 child (60%). Full demographic characteristics of the responders are further detailed in Table 1.

The mean raw (unnormalized) ProQOL scores for all 3 subcategories were found to be in the "moderate" range: burnout = 25.6 (SD = 5.6); secondary traumatic stress = 24.5 (5.4); and compassion satisfaction = 38.7 (SD = 5.4). Before additional analyses, normality of all 3 subcategory results was evaluated and found to be acceptable (Table 2). Correlations among the 3 ProQOL subcategories were assessed, and responders' burnout scores were

TABLE 2
ProQOL score summary for all responders (N = 50)

Summary measure	Burnout		Secondary traumatic stress		Compassion satisfaction	
	Mean	SD	Mean	SD	Mean	SD
Raw score	25.6	5.6	24.5	5.4	38.7	5.4
Skewness	−0.08		0.39		−0.3	
Kurtosis	−0.95		−0.51		−0.3	
Raw score reference range[7]	22 or less = low					
	23 to 41 = moderate					
	42 or more = high					

Descriptive report of ProQOL results by responders including mean (measure of central tendency), SD (variability), skewness (asymmetry), and kurtosis (tailedness) of all 3 subcategories (burnout, secondary traumatic stress, and compassion satisfaction).
ProQOL, Professional Quality of Life Scale version 5.

found to be associated with both the secondary traumatic stress and compassion satisfaction scores (Supplementary Table 1). Burnout and secondary traumatic stress had a significant positive correlation indicating that as the score for one increased, the score for the other also increased (PCC 0.54, $P < .001$), whereas burnout and compassion satisfaction scores were significantly inversely correlated with one another revealing as 1 score increased the other score tended to decrease (PCC –0.64, $P < .001$). There was no significant relationship between secondary traumatic stress and compassion satisfaction found.

After grouping responders by the demographic characteristics described in Table 1 (location, age range,

experience, employment status, shift, marital status, and number of children), ProQOL subcategory scores were examined by one-way ANOVA (Table 3). Based on the ANOVA results, ProQOL subcategory scores for 3 demographic characteristics warranted further examination:

1) Burnout and compassion satisfaction subcategory scores for years of experience as a nurse: examination of the post hoc Tukey test results for years of experience as a nurse revealed no significant between-group differences in the burnout or compassion satisfaction subcategory scores for any comparison.

TABLE 3
Subcategory ANOVA results for ProQOL subcategories (N = 50)

Demographic characteristic	Burnout		Secondary traumatic stress		Compassion satisfaction	
	F value	P value	F value	P value	F value	P value
Hospital location	0.42	.66	0.66	.52	0.52	.6
Age range	0.72	.55	1.56	.21	1.18	.33
Years of experience	2.66	.06*	1.35	.27	2.54	.07*
FTE status	0.06	.94	1.36	.27	0.86	.43
Shift worked	2.97	.06*	3.12	.05*	1.6	.21
Marital status	1.65	.19	0.68	.57	1.77	.17
No. of children living in the home	2.48	.07*	0.16	.93	3.33	.03*

ANOVA results evaluating the impact of each demographic characteristic on ProQOL.
ANOVA, analysis of variance; ProQOL, Professional Quality of Life Scale version 5; FTE, fukk-time equivalent.
* Any result with a P value of < .1 was further evaluated with a post hoc Tukey test to identify significant between-group differences in subcategory scores. Based on the post hoc Tukey tests, the only significant differences were as follows: (1) day shift nurses had significantly lower unnormalized mean burnout and secondary traumatic stress scores than midshift nurses, and (2) nurses with 1 child had significantly higher compassion satisfaction than those with 2 children.

TABLE 4

ProQOL burnout and secondary traumatic stress subcategory scores between day-shift and midshift nurses

Shift worked	Burnout*		Secondary traumatic stress†	
	Mean	SD	Mean	SD
Day shift (n = 23)	24.1	5.8	22.7	4.4
Midshift (n = 10)	29.1	4.9	27.3	3.7

Results of the post hoc Tukey test indicated day-shift nurses reporting significantly lower burnout and secondary traumatic stress scores than mid-shift nurses.
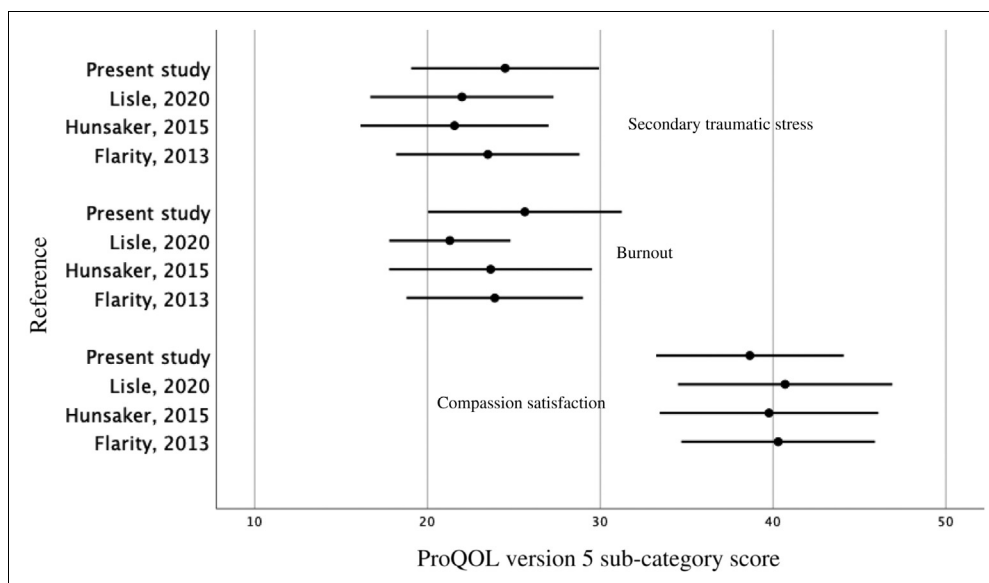ProQOL, Professional Quality of Life Scale version 5.
* Mean difference = 5; $t(31) = 2.376$; $P = .02$.
† Mean difference = 4.6; $t(31) = 2.915$; $P = .007$.

2) Burnout and secondary traumatic stress subcategory scores for the shift being worked: as suggested by Tukey test results, burnout subcategory scores for day-shift nurses (n = 23) were compared with those working the midshift (n = 10). Nurses working the midshift had significantly higher burnout subcategory scores (mean 29.1, SD 4.9) than those working the day shift (mean 24.1, SD 5.8, mean difference 5, t(31) 2.376, $P = .02$). The same groups' scores for secondary traumatic stress were also examined, and midshift nurses again had significantly higher mean scores (mean 27.3, SD 3.7) then those working the day shift (mean 22.7, SD 4.4, mean difference 4.6, t(31) 2.915, $P = .007$). Results also summarized in Table 4.

3) Burnout and compassion satisfaction subcategories for the number of children: based on the results of the post hoc Tukey test, compassion satisfaction subcategory scores for nurses with 1 child (n = 9) were compared with those with 2 children (n = 13). Nurses with 1 child had a significantly higher compassion satisfaction subcategory score (mean 41.9, SD 8.2) than those with 2 children (mean 35.2, SD 4.6, mean difference 6.7, t(20) = 2.432, $P = .02$).

FIGURE

ProQOL subcategory scores mapped with previous findings. Black dot represents the unnormalized point estimate (measure of central tendency) with the SD indicated by the left/right arms. ProQOL, Professional Quality of Life Scale version 5.

Discussion

This study was designed to assess the burnout, secondary traumatic stress, and compassion satisfaction levels in emergency nurses working through the COVID-19 pandemic to determine whether the nurses are currently experiencing compassion fatigue. The authors then took the current scores and compared those scores with similar studies conducted before the pandemic found in the literature. The results of this research determine that the emergency nurses are experiencing compassion fatigue as indicated by the moderate levels of burnout, secondary traumatic stress, and compassion satisfaction during the COVID-19 pandemic. The mean ProQOL subcategory scores fall in the moderate level for burnout, secondary traumatic stress, and compassion satisfaction.

Comparisons of the present study's results with those conducted before the presence of the COVID-19 pandemic suggest that moderate levels of burnout and secondary traumatic stress are consistently present along with a moderate level of compassion satisfaction. The scores were not significantly different after working through the COVID-19 surge experienced in Southern California, along with short staffing, changes in practice, critically ill patients, and overcrowded departments. Figure and Supplementary Table 2 illustrate the current study's results along with those that have been previously published with an unnormalized measure of central tendency (point estimate) and variability (SD).

Although a full systematic review or meta-analysis was not conducted, a targeted literature review focusing on examining the potential impact of the COVID-19 pandemic on results was conducted using a Preferred Reporting Items for Systematic Reviews and Meta-Analyses–like process.[28] After completion of a literature review, 3 manuscripts met all requirements and were included:

1. "The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses,"[29]
2. "Factors that influence the development of compassion fatigue, burnout, and compassion satisfaction in emergency nurses,"[30]
3. "Differences in Compassion Satisfaction, Compassion Fatigue, and Work Environment Factors by Hospital Registered Nurse Type."[31]

Some areas of consideration for this lack of major change from prepandemic times may be that emergency nurses have always adapted to rapid changes in patient acuity and high levels of stress; thus, they are more resilient to the environment created by the pandemic. Another possibility is the increased support from the leadership, the organization, and the public during the pandemic. Nurses were recognized as heroes during the early pandemic, which may have created a sense of support that prevented severe rises in burnout and secondary traumatic stress scores. In addition, the study took place during a period when COVID-19 cases were relatively low (after public distribution of COVID-19 vaccines began and before the major wave of cases caused by the delta variant began). As of July 27, 2021, the 7-day case average was more than 60,000 per day compared to the 20,338 case per day average seen during the study period.[32]

Although the mean scores were not different from earlier studies, certain demographic characteristics seem to have an impact on subcategory scores. When day shift was compared to midshift, the midshift nurses have significantly higher levels of burnout and secondary traumatic stress. This finding provides insight for the need to support the midshift nurses and further investigate what contributes to this result. Midshift nurses start the shift during busier times and end the shift during busier times. They often miss in-services scheduled for the morning and night shifts. Their break times do not fall at usual break times, which may prevent participation in the hospital's scheduled nursing events. Working the midshift may lead to missing department gatherings, supportive interventions, and preshift informational meetings and huddles. Plus, when the midshift nurses arrive, they are often sent straight out to the unit to take over an assignment, give lunch breaks, or relieve an overwhelmed coworker.

The number of children living at home was associated with the compassion satisfaction subcategory score. Nurses with 1 child living at home had significantly higher compassion satisfaction scores than those with 2. Currently: the average compassion satisfaction score for those with 1 child nearly improved from the "moderate" range to the "high" range. Although emergency nursing leaders do not have a direct impact on the number of children an individual has, additional support, such as flexible scheduling and nonpunitive available time off to care for family, can be provided to lessen the impact of childcare stressors on their professional quality of life.

The implications of the results in this current study compared with previous studies indicate that nurses are constantly at risk of the development of compassion fatigue, and early recognition and continuous interventions are needed. When nurses experience burnout and secondary traumatic stress combined with low levels of compassion satisfaction, they will slowly and quietly develop compassion fatigue. Once the nurse is experiencing compassion fatigue, a sudden onset of physical and emotional exhaustion may occur, and the ability to recover becomes difficult.[14] Patient outcomes suffer, turnover rates increase, unit moral decreases, and the nurse's mental health declines. The consequences are devastating to the nurse, the patients, and the organization.[14]

Limitations

The study had several limitations. First, the survey was sent out in May 2021, which was a time when the COVID-19 surge in January had decreased and work life had returned to a more normal state. Second, the study's sample (N = 50) was limited to a single hospital system in Southern California. In addition, the significant findings by demographic characteristics (shift worked and number of children) were analyzed with small sample sizes indicating the need for further research. Third, the survey was sent out in an email and posted in the break room. This was a voluntary survey, which may have captured only nurses who were engaged enough to complete the survey. Nurses who were experiencing extreme burnout and compassion fatigue may have chosen not to participate. Finally, the demographics did not include sex or education level. The ProQOL manual explains that sex does not significantly impact scores; however, looking at the results obtained, these demographics may provide additional insight.[7] For example, were the nurses with 2 children who scored low on compassion satisfaction male or female? In addition, do the nurses working midshift voluntarily work those hours or are they waiting for a day-shift spot to open? Nurses with children may work midshift for childcare reasons, yet the hours make sleeping and self-care difficult. These factors may contribute to high burnout and low compassion satisfaction and not because of the organization. Further investigation into variations of the ProQOL score based on education level (ADN, BSN, MSN), certification, such as certified emergency nurse, and any education on self-care and/or emotional intelligence could be explored for its potential effect on the nurses' scores.

As with all observational studies, the risk of bias is present. The small sample size and limited locations of participants and the fact that generally motivated individuals complete optional studies all play into the risk of selection bias.[33] Owing to the potential risk, generalization of the results of this study applying to all emergency nurses throughout the United States or beyond without the application of further analysis would not be advisable.

Implications for Emergency Nurses

An important point in this study is that although the ProQOL scores of the emergency nurses are not significantly higher in burnout and secondary traumatic stress or significantly lower in compassion satisfaction from the prepandemic scores found in similar studies,[29-31] they are still in the moderate range, with the point estimate for compassion satisfaction being lower than previous findings and burnout and secondary traumatic stress point estimates being higher. Continuous work to improve these scores and the emergency nurses' quality of life is needed. Those in leadership positions need to be aware of the increased burnout and secondary traumatic stress levels in the midshift nurses and should include the midshift nurses in all supportive interventions.

Interventions to support higher compassion satisfaction levels and decrease burnout and secondary traumatic stress levels may cultivate a better work environment for our nursing professionals, increase patient satisfaction, and decrease turnover. Interventions that focus on nurse recognition have shown to be effective in reducing burnout and turnover.[34] Cost-effective interventions can be implemented as part of a unit-based improvement project. Items such as a gratitude board in the break room where staff can write a thank you message openly to one another, anonymous suggestion boxes that are addressed in unit meetings, leadership rounding where leaders show support and interest in staff, and a time and place for staff to meet, debrief, and provide feedback are shown to be effective.[34]

Compassion fatigue prevention in nurses can be targeted by interventions based on self-care and self-awareness. Activities such as meditation, mindfulness exercises, journaling, adequate sleep, healthy diet, and exercise are self-care activities that support well-being. Some hospitals have a dedicated self-renewal room where nurses can relax in times of stress. Other hospitals have used mobile carts with refreshments, journals, aroma therapy, stress reduction balls, and portable chair massagers.[35] Leadership can support nurses by implementing proactive programs targeted at improving nurses' well-being.[14] Leaders can also provide education on the concepts of burnout and compassion fatigue and the importance of self-awareness and early recognition to prevent compassion fatigue.[14] Nurses may not be aware of what compassion fatigue is and how it starts. Simple education on the concept to promote awareness is important for prevention. It is also important to not a component of compassion fatigue is burnout, which is now understood as being substantially influenced by organizational components such as unhealthy work environments, pressure from organizational policies, insufficient resources/staffing and patient care-related stress. Interventions focused on the individual nurse alone will not be sufficient; system-level solutions are needed to effectively address this occupational phenomenon.[8] Organizational and individual efforts to prevent and combat compassion fatigue promise to benefit the nurse, the patient, and the organization.

Conclusion

The results of this study show that emergency nurses had moderate levels of burnout and secondary traumatic stress with moderate levels of compassion satisfaction indicating

probable compassion fatigue while working through the COVID-19 pandemic. The present study's results were not significantly different from the prepandemic levels reported in other nursing studies. Emergency nurses are accustomed to unexpected events on a daily basis. They work in chaotic environments and adapt to changes throughout the shift based on incoming patients.

Potential areas of future research include surveying other nursing units in the hospital with the ProQOL to assess the scores by department. Comparing other units' scores with those reported in emergency nurses may provide insight on the resiliency of emergency nurses working through situations such as the COVID-19 pandemic. In addition, future research into the development of a targeted questionnaire specifically for nurses to assess the components of the ProQOL has been suggested.[25] Further assessment into what positive interventions leadership and hospital systems provided to nurses during the pandemic should be explored. The added support that nurses receive during the pandemic may have had a positive effect on preventiing burnout and improving compassion satisfaction.

The finding that midshift nurses have higher levels of burnout and secondary traumatic stress subcategory scores indicates a need for further research as does the impact of children on compassion satisfaction. Assessment of the factors that contribute to the difference in scores between day shift and midshift and tailoring specific interventions to support the midshift nurses are needed.

Finally, the prevention of compassion fatigue in nurses should be as high a priority as any other quality improvement project in the hospital setting. When the nurses experience high burnout, secondary traumatic stress, and low compassion satisfaction, the entire organization suffers.

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Author Disclosures

Conflicts of interest: none to report.

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jen.2022.03.008.

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Supplementary Data

Search methods for identifying previously published raw, unnormalized, ProQOL subcategory scores (and standard deviations) for US-based nurses:

- Searches included Ovid (Evidence-based Medicine Reviews, Embase, and MEDLINE), PubMed, and Google Scholar using key search terms in various combinations:
  a. Key search terms:
     i. "Nurse(s)",",
     ii. "Professional Quality of Life," or "ProQOL,"
     iii. With and without "Scale,"
     iv. With and without "version 5," "V", or "v5."
- Articles were restricted to peer-reviewed journals, published in English, conducted using version 5 of the ProQOL (released in 2012) and conducted in the US.
- Only subcategory scores for nurses were included, rather than those pooled with other health care providers.
- Also, ProQOL subcategory means/medians and SDs must include the raw, or unnormalized because transformation to a t-score makes comparisons difficult because of the mean (or median) being set at 50 with a SD of 10.
- An additional approach to article selection included reviewing reference lists for pertinent citations.
- Studies using a pre/post-intervention were included with the pre-intervention scores being used.

SUPPLEMENTARY TABLE 1
ProQOL Subcategory correlations (N = 50)

	Secondary traumatic stress		Compassion satisfaction	
	PCC	*P* value	PCC	*P* value
Burnout	0.54	*P* < .001*	-0.64	*P* < .001*

PCC, Pearson's correlation efficient; ProQOL, Professional Quality of Life Scale version 5.
* Significant correlation.

SUPPLEMENTARY TABLE 2
ProQOL subcategory scores with previous findings.

Publication	Burnout		Secondary traumatic stress		Compassion satisfaction	
	PE	SD	PE	SD	PE	SD
Present study (N = 50)	25.6	5.6	24.5	5.4	38.7	5.4
Lisle et al[31] (N = 208)	21.3	3.5	22	5.3	40.7	6.2
Hunsaker et al[30] (N = 284)	23.7	5.9	21.6	5.4	39.8	6.3
Flarity et al[29] (N = 73)	23.9	5.1	23.5	5.3	40.3	5.6

PE, point estimate; ProQOL, Professional Quality of Life Scale version 5.
Number of participants (N).
Point estimate could be either a mean or a median.