

Occupational-Induced Secondary Traumatic Stress and Posttraumatic Stress Disorder in Respiratory Therapists

Katlyn L Burr, Paul O'Brien, Joel M Brown, Scott H Penfil, and James H Hertzog

BACKGROUND: Secondary traumatic stress (STS) may occur in the caretakers of individuals who have experienced traumatic events or are suffering and, when severe, may be associated with posttraumatic stress disorder (PTSD) at a diagnostic level due to STS. For respiratory therapists (RTs), the incidence of STS and PTSD at a diagnostic level due to STS has not been examined. We assessed the prevalence of self-reported STS and PTSD at a diagnostic level due to STS in licensed RTs. **METHODS:** Licensed RTs who were members of the American Association for Respiratory Care completed the Secondary Traumatic Stress Scale (STSS) based on feelings experienced over the preceding 30 days and 12 months. Results were evaluated on the basis of primary patient population (neonatal/pediatric vs adult), years of experience, and usual work location (ambulatory care, acute care, or ICU) using the McNemar chi-square analysis and the Fisher exact test. **RESULTS:** 201 licensed and practicing RTs completed the survey. 92% of the respondents worked ≥ 30 h/week, 75% worked in ICUs, 67% worked primarily with adults, and 89% had been in practice ≥ 6 years. PTSD at a diagnostic level due to STS was common in all respondents, occurring in 36% based on experiences from the prior 30 days and in 32% based on experiences from the prior 12 months. **CONCLUSIONS:** No difference in PTSD at a diagnostic level due to STS was noted between RTs caring for neonatal/pediatric versus adult patients or between RTs based on years of work experience or based on work environment. STS and PTSD at a diagnostic level due to STS was common in RTs. *Key words:* occupational-induced secondary traumatic stress; posttraumatic stress disorder; respiratory therapist; health care; survey. [Respir Care 2020;65(7):1019–1023. © 2020 Daedalus Enterprises]

Introduction

Stress can wreak havoc on a person, both mentally and physically. Unfortunately, for most people, stress is abundant and can come from a variety of sources, including from professional interactions with individuals who are experiencing stressful situations. Secondary traumatic stress

(STS) is “the natural, consequent behaviors and emotions resulting from knowledge about a traumatizing event experienced by a significant other. It is the stress resulting from helping or wanting to help a traumatized or suffering person.”¹ Health care providers often work with individuals who are traumatized or suffering from critical illness and therefore are at risk for developing STS.

Respiratory therapists (RTs) are one group of health care providers at risk for the development of STS. RTs work

Ms Burr, Mr O'Brien, Mr Brown, and Dr Hertzog are affiliated with Respiratory Care Services, Nemours/Alfred I. duPont Hospital for Children, Wilmington, Delaware. Dr Penfil is affiliated with the Department of Pediatrics, Samuelson Children's Hospital at Sinai, Baltimore, Maryland. Dr Hertzog is affiliated with the Department of Pediatrics, Division of Critical Care Medicine, Nemours/Alfred I. duPont Hospital for Children, Wilmington, Delaware and with the Sidney Kimmel Medical College at Thomas Jefferson University, Philadelphia, Pennsylvania.

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Correspondence: Katlyn L Burr RRT RRT-NPS AE-C, Respiratory Care Services, Nemours/Alfred I. duPont Hospital for Children, 1600 Rockland Road, Wilmington, DE 19803. E-mail: katlyn.burr@nemours.org.

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daily in multiple environments and with a variety of patients who have been traumatized or are suffering from illness. Psychological distress and STS may result from repetitive exposure to multiple seemingly minor events or to a single sudden or unexpected event that overwhelms effective coping mechanisms (known as a critical incident).² STS, when severe enough, meets the diagnostic criteria for posttraumatic stress disorder (PTSD).³

Studies of nursing professionals suggest that STS can develop over time and can be delayed as ongoing exposure to stress and trauma is experienced.⁴ Health care providers who care for children may experience additional stress, which may be attributed to communication problems, poor relationships with a child's family, and the inability to relieve pertinent symptoms in this patient population.⁵

While studies on the occurrence of STS in health care providers are increasing, there are no published studies within the field of respiratory care related to this topic. We performed a survey of RTs to gain further understanding as to whether RTs experience STS and, if so, whether the development of STS is associated with certain demographic characteristics of RTs and whether the degree of STS is severe enough to be consistent with PTSD. We hypothesized that the prevalence of STS and PTSD at a diagnostic level due to STS would be higher in RTs than in other health care professionals and that this prevalence would be more pronounced in RTs who care for neonatal/pediatric patients, those who have less work experience, and those who work in intensive care units.

Methods

We performed a survey study after approval was obtained from the hospital's institutional review board. Consent to participate in the study was obtained as part of the survey's initiation. Various tools are available to measure the effects of STS; we utilized the Secondary Traumatic Stress Scale (STSS), which is a validated 17-item instrument designed to measure intrusion (5 items), avoidance (7 items), and arousal (5 items) symptoms associated with indirect exposure to traumatic events via one's professional relationships with traumatized clients.^{3,6} Each item is rated with a Likert score ranging from 1 (never) to 5 (very often). Subscale scores (intrusion, avoidance, and arousal) are generated by totaling the responses to questions associated with each subscale, and a total score is generated by adding up the responses to all items (range 17–85).

Our survey consisted of the STSS and demographic questions. The survey and research proposal were submitted to the American Association for Respiratory Care (AARC) Executive Committee, which approved the survey for participation by AARC members and for posting

QUICK LOOK

Current knowledge

Health care providers work with individuals who are traumatized or suffering from critical illness and therefore are at risk for developing secondary traumatic stress. Occupational-induced secondary traumatic stress can decrease workplace satisfaction and engagement and increase staff turnover.

What this paper contributes to our knowledge

Secondary traumatic stress and posttraumatic stress disorder were prevalent in the population of respiratory therapists surveyed. Stress was present in respondents in all demographic categories, including patient population, employee tenure, and work environment.

on AARConnect (<https://connect.aarc.org/home>) for solicitation of survey subjects. The survey was transferred to an electronic survey engine and data collection program (SurveyMonkey, San Mateo, California). The data collection program was designed to allow individuals to complete only one survey; attempts to complete more than one survey from the same internet protocol address were denied.

The survey was posted on the four largest AARConnect specialty sections (ie, Management, Long-Term Care, Adult, and Neonatal-Pediatric) for voluntary enrollment of RTs from different practice environments. Each section is composed of AARC members who have a focused interest in the titled section. The survey was only accessible to members of the AARC during the 32-d survey period. A reminder was posted on each section on day 29 of survey availability; no additional prompting for RT participation was performed. Nonpracticing and unlicensed RTs were excluded from the survey analysis. No paper form of the survey was accepted. All surveys were collected anonymously. Survey participants completed the STSS twice: once based on their feelings when reflecting back 30 d from the time of the survey, and a second time based on their feelings when reflecting back 12 months from the time of the survey. We chose a 30-d reflection period rather than the 7-d reflection period used by Bride et al⁶ to optimize clinical exposure time for RTs with clinical schedules that include extended periods of nonclinical time or stretches off work due to the common practice of 12-h shifts in our field. We also evaluated a 12-month reflection period to assess for changes in STS over time, as there may be a delayed presentation of the psychological signs and symptoms of STS.²

Table 1. Subject Demographics

Demographic	<i>n</i> (%)
Sex	
Male	83 (41)
Female	118 (59)
Age	
18–25 y	3 (2)
26–35 y	30 (15)
36–45 y	40 (20)
46–60 y	95 (47)
> 60 y	33 (16)
Location of work facility	
Rural	55 (27)
Urban	146 (73)
Hours per week of work	
≥ 30 h	184 (92)
20–29 h	11 (5)
10–19 h	2 (1)
< 10 h	4 (2)
Work Environment	
ICU	151 (75)
Acute care unit (non-ICU)	33 (17)
Ambulatory care	17 (8)
Patient population most worked with	
Adult	134 (67)
Neonatal	29 (14)
Pediatric	38 (19)
Years practicing as respiratory therapist	
< 1 y	3 (2)
1–5 y	18 (9)
6–10 y	21 (10)
> 10 y	159 (79)

We evaluated the prevalence of self-reported STS related to the demographic and workplace characteristics of licensed respiratory care practitioners based on survey responses to the STSS. Using the algorithm method,³ each subscale of the STSS was evaluated for whether threshold values had been met (Likert scores of ≥ 3 for 1 item, 3 items, or 2 items in the intrusion, avoidance, and arousal subscales, respectively). Because these 3 subscales correspond to diagnostic criteria for PTSD, achieving threshold values in all 3 subscales indicates that the individual may be experiencing PTSD at a diagnostic level due to STS.³

Associations between respondents who may be experiencing PTSD at a diagnostic level due to STS and demographic and work factors were evaluated using the McNemar chi-square analysis for paired data and the Fisher exact test for non-paired data. A *P* value of ≤ .05 was considered statistically significant. Statistical analysis was performed with Stata IC 13.1 (Stata Corp, College Station, Texas).

Table 2. Frequency of STSS Subscales Reaching Threshold Levels Obtained by Evaluation of Individual Questions Responses Based on the Bride Scoring Model for Subscales

Subscale	30 Days	12 Months
None	42 (21)	66 (33)
Intrusion	131 (65)	106 (53)
Avoidance	96 (48)	85 (42)
Arousal	114 (57)	107 (53)
Intrusion + Avoidance	7 (3)	5 (2)
Intrusion + Arousal	24 (10)	20 (10)
Avoidance + Arousal	8 (4)	10 (5)
All 3	72 (36)	64 (32)

Data are presented as *n* (%). *N* = 201 respondents.
STSS = Secondary Traumatic Stress Scale

Results

A total of 248 RTs initiated the survey; 45 surveys were not completed and were excluded from the analysis, as were 2 surveys completed by RTs who were no longer in practice, leaving 201 (81%) surveys completed by licensed and practicing RTs. The survey took on average 6 min to complete.

Demographic characteristics of survey participants are shown in Table 1. The majority of survey participants were > 35 y old and worked ≥ 30 h per week. Most survey respondents worked in an ICU, cared for adult patients, and have been in practice for > 10 y. A total of 189 survey participants (94%) worked in a hospital setting, with 90 (47%) of these hospitals being level-1 trauma centers.

Table 2 shows the frequency with which the subscales of the STSS met threshold criteria individually, in pairs, and for all 3 subscales for surveys that evaluated responses to items for the 30 d prior to the survey and for 12 months prior to the survey. Table 3 shows the response values for subscales and the full STSS values for surveys that evaluated responses to items for the 30 d prior to the survey and for 12 months prior to the survey. Symptoms of STS were common, with 79% and 67% of survey respondents scoring at least one STSS subscale above threshold levels based on their prior 30-d and 12-month experiences, respectively. PTSD at a diagnostic level due to STS (ie, achieving threshold criteria in all 3 subcategories) was present in 36% and 32% of survey respondents when they responded to STS items based on their prior 30-d and 12-month experiences, respectively. The McNemar test revealed no statistical significance between results reported at the 30-d recall period when compared to the 12-month recall period for respondents who met the diagnostic criteria for PTSD (*P* = .12).

When evaluating PTSD at a diagnostic level due to STS based on demographic determinants, there were no statistically significant differences between practitioners caring

Table 3. STSS Full and Subscale Response Values

	Mean (SD)	Possible Range	Observed Range
30 Days			
Intrusion	9.99 (3.84)	5–25	5–22
Avoidance	15.32 (5.70)	7–35	7–32
Arousal	11.68 (4.06)	5–25	5–22
Full STSS	36.98 (12.45)	17–85	17–74
12 Months			
Intrusion	9.67 (4.09)	5–25	5–23
Avoidance	14.92 (5.89)	7–35	7–33
Arousal	11.29 (4.30)	5–25	5–24
Full STSS	35.89 (13.31)	17–85	17–79

STSS = Secondary Traumatic Stress Scale

primarily for adult versus neonatal/pediatric patients, no differences based on years of work experience, no differences based on work location, no differences based on sex, and no differences based on 30-d versus 12-month surveys.

Discussion

In the course of their professional duties, health care workers will care for individuals who are suffering from the effects of traumatic and critical illnesses. This puts the health care worker at risk for the development of STS. Ongoing close contact with such patients may result in considerable emotional disruption and may indirectly result in the development of stress in the practitioner, such that it may be viewed as an occupational hazard.⁶ STS may include symptoms such as intrusive imagery, avoidant responses, physiological arousal, distressing emotions, and functional impairment, all core criteria for PTSD.^{3,6} It is likely that all health care workers will contend with STS during their career.⁷

The occurrence of STS has been evaluated in some providers who care for traumatized and critically ill individuals. In a study of social workers caring for traumatized populations, Bride³ found that 70% of those surveyed experienced at least one symptom of STS, and 15.2% had levels of STS severe enough to meet core criteria for the diagnosis of PTSD. In nurses who specialize in the care of trauma patients, 7% had STS (Penn Inventory score ≥ 35).⁸ Evaluations for rates of PTSD have been conducted for nurses, where 18% met diagnostic criteria for PTSD;⁹ emergency department nurses, where 8.5% met clinical levels of PTSD;¹⁰ and physicians following the Omagh bombing, where 25% had symptoms consistent with PTSD.¹¹ To date, no studies evaluating the prevalence of STS and PTSD have been conducted in RTs.

Using the STSS, we undertook a survey study of licensed RTs to determine the incidence of STS and when individuals may be experiencing PTSD at a diagnostic level due to

STS, hypothesizing that the incidence of these problems would be high. The STSS measures a respondent's reactions to traumatic stress through their work by specifically defining their exposure to a patient as the traumatic event to which the professional responds to the STSS.¹² In our survey respondent group, STS and PTSD at a diagnostic level due to STS was prevalent, both when respondents considered their responses based on their feelings over the prior 30 d and over the prior 12 months. Our observed rates of PTSD at a diagnostic level due to STS in all survey respondents (36% for 30-d reflection, 32% for 12-month reflection) exceed the rates previously noted for other health care professionals. The reasons for this difference are unknown, but they may be related to the various patient populations and patient volumes that an RT may serve in the course of their regular clinical duties. Rate differences may also reflect variations in the methods used to detect STS and PTSD and in our use of 30-d and 12-month reflection periods versus shorter periods used in some studies. Further investigations to confirm and better understand the reasons for high rates of STS and PTSD in RTs are warranted.

We also hypothesized that important practitioner demographic characteristics would influence the prevalence of STS and PTSD at a diagnostic level due to STS, but this was not found. The prevalence of PTSD at a diagnostic level due to STS was not different between practitioners who primarily cared for adult patients versus those who cared primarily for infants and children. While specific challenges in the care of infants and children may result in unique forms of practitioner stress,⁵ the nature of STS may be such that these factors are negated by the challenges of caring for adult patients and their families during health care crises. Further research into these issues is warranted. Likewise, there was no difference in the prevalence of PTSD at a diagnostic level due to STS based on years of work experience. RTs who are new to the field may not have had the opportunity to develop adequate coping mechanisms or a professional and personal support system that would allow them to manage STS; however, the development of STS may be the result of cumulative exposures to patients who have been traumatized or are suffering, such that more experienced RTs could be at greater risk. Further evaluation of the impact of work experience on STS development is necessary. Finally, we found no difference in the prevalence of PTSD at a diagnostic level due to STS based on work location. While it might be expected that RTs working in an acute care unit or ICU would be more likely to encounter patients who have been traumatized or are suffering, we did not investigate the nature of the ambulatory care practice of our survey respondents. It is possible that ambulatory care has equivalent or greater opportunities for patient exposures that foster STS as other work environments. Further study into these possibilities would be valuable.

Several limitations to our study should be noted. Our survey was open only to active and licensed RTs who are members of the AARC and who participate in their AARConnect service. As a result, our findings may not be generalizable to all RTs. Because participation in the survey was voluntary and the topic of the survey was disclosed to participants, selection bias may have been introduced in that RTs with STS and PTSD may or may not have chosen to participate. As previously noted, the STSS measures a respondent's reactions to traumatic stress through their work by specifically defining their exposure to a patient as the traumatic event to which the professional responds to the STSS.¹² However, despite these instructions, it is unknown whether direct practitioner exposure to traumatic events influences responses to the STSS. Finally, survey participants were asked to reflect on the prior 30 d and the prior 12 months when completing the STSS, rather than reflecting on the prior 7 d as originally described for the STSS,⁶ to better reveal the experiences of the RTs. Other studies have similarly modified the reflection period to better meet the needs of their study populations.¹³ Despite these limitations, this study provides a first view of the prevalence of STS and PTSD at a diagnostic level due to STS in RTs and may serve as the basis for additional studies in this area.

Conclusions

STS and PTSD at a diagnostic level due to STS was prevalent in our sample of RTs at a level that exceeds those reported by other health care professions. There was no correlation between the prevalence of STS or PTSD that related to the demographic components measured, work environment, work population, or work history shown in our survey sample. Further research on STS and PTSD in RTs and effective means for mitigating these problems are needed.

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