RESEARCH

Secondary Traumatic Stress in Trauma Nurses: Prevalence and Exposure, Coping, and Personal/Environmental Characteristics

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ABSTRACT

The purpose of this study is to determine the incidence of secondary traumatic stress (STS) in nurses who primarily care for trauma patients. A demographic/behavioral survey and Penn Inventory to measure the presence of STS were distributed to 262 nurses in a level I trauma center. Relationships between STS and years of experience, coping strategies, and personal and environmental characteristics were examined. Response rate was 49%. The median Penn Inventory score was 17.5. Nine nurses (7%) scored 35 or more, reflecting STS. Those with STS had fewer years of nursing experience and in trauma nursing, were more likely to use medicinals, and had fewer and weaker support systems.

KEY WORDS

Secondary traumatic stress, Posttraumatic stress, Trauma nurses, Vicarious trauma

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Nurses who primarily care for critically ill and injured trauma patients on a daily or near daily basis, whether the nurse provides care in the resuscitation, critical care, intermediate care, or acute care areas, are subject to traumatic stressors as defined by Diagnostic and Statistical Manual of Mental Disorders.[1] Repeated exposure to traumatic stressors may result in the development of untoward effects such as posttraumatic stress disorder (PTSD) or PTSD symptoms.[2,3]

Posttraumatic stress disorder has been widely studied in populations of individuals who have been directly exposed to traumatic events such as military personnel or victims of trauma, bioterrorism, and natural disasters.[4,5] It is possible to be traumatized by indirect exposure to traumatic events through interactions with trauma victims. In people who work with victims of traumatic events, PTSD is often referred to as secondary traumatic stress (STS) or vicarious trauma.[6,7] *Secondary traumatic stress* is defined as the emotions and behaviors that a person experiences as a result of being exposed to another person's traumatic experience.[7] There is a dearth of studies that address the implications of working with trauma patients on nurses and development of STS.[5,8-10]

Nurses caring for trauma patients may develop STS as they are exposed to a variety of traumatic stimuli. Dutton and Rubinstein[8] provide a framework for understanding the occurrence of STS in health professionals who work with trauma victims. A model using this framework was created to categorize the various factors that can influence the development of STS in trauma nurses (Figure 1). Within this model, STS reactions are mediated by various inputs including exposure to traumatic injuries of others, use of coping strategies, and personal or environmental characteristics.

Nurses in environments that treat victims of trauma are at increased risk for development of STS. Sixty percent of a sample of Vietnam Nurse Veterans developed PTSD due to the care they provided to soldiers who experienced trauma.[11] STS has been reported in social workers

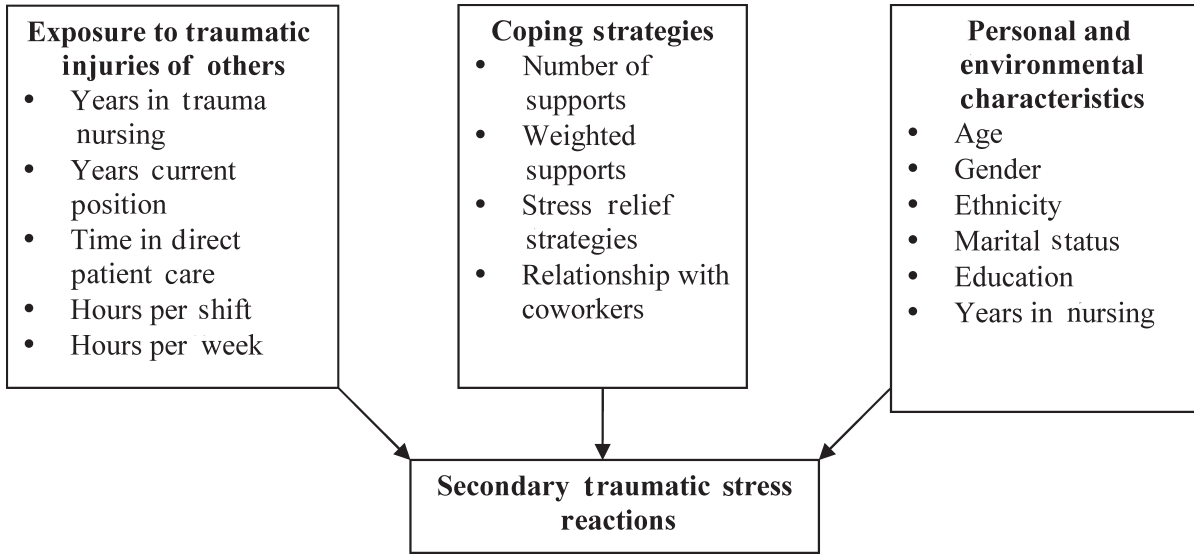

Figure 1. Theoretical model of secondary traumatic stress in trauma nurses.

treating trauma victims.[12] In a sample of 282 social workers working with trauma victims, 70.2% experienced at least 1 symptom of STS.[12] STS was found in social workers helping those who suffered in the September 11, 2001 attacks on the World Trade Center in New York City.[13,14]

The development of STS in nurses may be delayed or develop over time as increased exposure to trauma is experienced.[15] Intensive care unit nurses are more likely to develop STS than medical-surgical nurses.[3] Intensive care unit nurses are also at an increased risk of developing an illness related to high levels of work-related stress.[16]

Coping strategies influence the development of STS.[8] Trauma nurses who are exposed to trauma through their work may use a variety of coping strategies. The types of coping responses employed have to do with the level of stress, which they experience. Nurses' awareness of the development of STS and the use of coping mechanisms related to care of trauma patients may be important in potentially avoiding personal complications.[17] Interventions to help cope with their exposure to trauma may help prevent or overcome STS.[17,18] Health care workers who provide care to trauma victims have identified prevention of stress, as a priority in their perceived training needs.[19]

Personal and environmental characteristics may contribute to the development of STS. In emergency department nurses, the development of STS symptoms was related to interpersonal conflict in the work environment.[2] In critical care nurses, working evening or night shift was associated with STS.[3] A personal history of traumatic experiences was not found to be related to the development of STS in disaster mental health workers who responded to the September 11, 2001 attacks. However, a history of discussion of previous trauma or having therapy related to past trauma was related to the development of STS in these social workers.[13] The exposure of the trauma worker to the traumatic experiences of a patient can have negative implications in their personal life.[20]

PURPOSE

This study was designed with 2 purposes, first to evaluate the prevalence of STS in nurses working in a civilian level I trauma center and second to examine the relationships of exposure to traumatic injuries of others, coping strategies, and personal and environmental characteristics to the nurses' development of STS.

METHODS

Sample and Setting

The study was conducted in an urban, 100-bed all-trauma hospital. All nursing units of the trauma center were included: neurotrauma critical care, neurotrauma intermediate care, multitrauma critical care, multitrauma intermediate care, select trauma critical care, select trauma intermediate care, shock trauma acute care unit, hyperbaric chamber, trauma operating room, trauma resuscitation unit, trauma postanesthesia care unit, and the trauma clinic. Because the focus was on bedside nurses, only the 262 staff nurses in the trauma center who provide direct patient care were eligible to participate in the study. Nurses employed in leadership roles, for example, nurse managers, clinical nurse specialists, and nurse practitioners, were not eligible to participate.

Procedure

After obtaining institutional review board approval, the demographic/behavioral survey, the Penn Inventory[21] to

assess STS, and a letter requesting nurses' participation in a survey study were attached to the payroll envelopes to assure distribution to all staff nurses who provide direct patient care in the trauma center. The letter described the study and requested that nurses complete the demographic form and attached questionnaires and place the completed forms in drop boxes located in the nursing units. No personal identification was included in the data requested. The data collection period was from February 9 through March 9, 2007.

Instruments

Nurses completed a demographic/behavioral survey that was developed and refined on the basis of inputs from focus groups of staff nurses and clinical nurse specialists in the trauma center. The form included a personal nursing history form to assess demographic data, nursing experience, support systems, and coping strategies. They also completed the Penn Inventory to measure the presence and severity of traumatic stress.

The demographic/behavioral survey form included questions related to the nurse's age, gender, race/ethnicity, and marital status. The personal nursing history included queries related to education, years in nursing, current unit, percent of time in direct patient care, primary shift, hours per week, and primary shift length. Exposure to traumatic injuries of others was assessed using questions about total number of years in trauma nursing and years in current nursing position in the trauma center. Respondents were also requested to indicate which of 7 types of support systems they used: (1) coworkers, (2) friends, (3) religious connections, (4) clubs, (5) family, (6) pet(s), or other supports. They indicated the strength of their support systems on a 1 to 4 Likert scale. Mean number of supports (total number of supports checked) and weighted support (number of supports multiplied by relative amount of social support) were calculated for each participant. They were asked to indicate use of 8 stress relief strategies: (1) exercise, (2) hobbies, (3) religion, (4) meditation, (5) travel, (6) professional counseling, (7) alcohol, and (8) medicinals. Relationship with coworkers was rated on a 1 to 5 Likert scale where 1 indicated a negative/difficult relationship with coworkers and 5 indicated a good/positive relationship.

The Penn Inventory[21] was used to measure PTSD symptoms in nurses, previously defined as STS reactions. The Penn Inventory was chosen because it was simple to administer and not exceedingly time consuming to complete. It is composed of 26 items each consisting of 4 sentences. For each item the nurses in the study circled the sentence that best describes themselves. The meanings of the sentences measure the presence or absence of traumatic stress symptoms, their degree, frequency, and intensity. Several examples of items are provided in Table 1. Scores on the Penn Inventory range from 0 to 78 with those scores of 35 or greater signifying PTSD[21] The Penn Inventory has high internal consistency and validity; sensitivity 0.90 to 0.97, specificity 0.61 to 1.0 and efficiency 0.94.[21-24] The reliability of the Penn Inventory in the current sample was confirmed (Chronbach's $\alpha = 0.857$).

Data Analysis

The Student t tests, χ^2, and the Fisher exact tests were used to compare the exposure, coping, and personal and working environment characteristics of nurses who had Penn Inventory scores 35 or more with those who did not have scores suggestive of STS.

RESULTS

Study Population Characteristics

Of the 262 staff nurses working at the trauma center who were eligible to participate in the study, 128 (49%) completed and returned the questionnaires. Personal and environmental characteristics are summarized in Table 2. Participants ranged from 22 to 61 years old, were 62.5% female, and 15.6% minority. Education ranged from diploma through doctoral level, with 72.7% indicating that they held a bachelor's degree or above. Years of nursing experience ranged from 0.46 to 39 years (mean = 12 years, SD = 10.7).

The characteristics related to exposure of the nurses to traumatic injuries of others are summarized in Table 3. Within the trauma center, respondents worked in acute care, intermediate care, critical care, trauma clinic, postanesthesia care, trauma resuscitation, perioperative, or hyperbaric chamber unit. The largest number of respondents (n = 40) worked in a critical care unit. Years in trauma nursing ranged from 0.16 to 35 years (mean = 8.7, SD = 9.2) and in current position ranged from 0.16 to 30 years (mean = 5.7, SD = 7.2). A majority of the participants spent 75% or more of their time in direct patient care and worked 32 to 40 hours per week.

Coping strategies included use of support systems and stress relief strategies (Table 4). The number of support systems used by respondents ranged from none to 7. The most frequently reported supports were family (n = 116, 90.6%), friends (n = 105, 82%) and coworkers (n = 91, 71.1%). A majority of the trauma nurses (64.8%) ranked their support systems as strong. Over 85% (n = 102) of the nurses rated their relationships with coworkers as 4 to 5, where 1 is negative/difficult and 5 is good/positive. Respondents indicated use of up to 6 stress relief strategies. Stress relief strategies that were used most frequently included hobbies (n = 84, 65.6%) and exercise (n = 78, 60.9%).

Characteristics Associated With Penn Inventory Scores Indicative of Traumatic Stress

Penn Inventory scores ranged from 1 to 54. The median score was 17.5, with a mean of 18.5(SD = 10.24). Nine

Table 1.

Instructions and Example Items From the Penn Inventory[21]

Instructions: On this questionnaire are groups of statements. Please read each group of statements carefully and pick out the statement in each group that best describes the way you have been feeling during the past week, including today. Circle the letter beside the one you picked. Be sure to read all the statements before making your choice.

A. When I want to do something for enjoyment, I can find someone to join me if I want to.
B. I'm able to do something for enjoyment even when I cant find someone to join me
C. I lose interest in doing things for enjoyment when there's no one to join me.
D. I have no interest in doing anything for enjoyment at all.

A. I rarely feel jumpy or uptight.
B. I sometimes feel jumpy and uptight.
C. I often feel jumpy and uptight.
D. I feel jumpy or uptight all the time.

A. I know someone nearby who really understands me.
B. I'm not concerned whether anyone nearby really understands me.
C. I'm worried because no one nearby really understands me.
D. I'm worried because no one nearby understands me at all.

A. My spiritual life provides more meaning than it used to.
B. My spiritual life provides as much meaning as it used to.
C. My spiritual life provides less meaning than it used to.
D. I don't care about my spiritual life.

A. I've told a friend or family about the important parts of my most traumatic experiences.
B. I've had to be careful in choosing the parts of my traumatic experiences to tell friends or family members.
C. Some parts of my traumatic experiences are so hard to understand that I've said almost nothing about them to anyone.
D. No one could possibly understand the traumatic experiences I've had to live with.

A. I sleep as well as usual.
B. I don't sleep as well as usual.
C. I wake up more frequently or earlier than usual and have difficulty getting back to sleep.
D. I often have nightmares and wake up several hours earlier than usual and cannot get back to sleep.

nurses (7%) scored 35 or more, indicating the presence of STS and 16 nurses (11%) had scores 30 or more, near diagnostic of STS. There were no differences in personal and environmental characteristics of age, ethnicity, gender, education, and marital status, between those with a Penn Inventory score 35 or more who experienced STS and those who had a Penn Inventory score less than 35 (Table 5). Nurses with STS had fewer years in nursing than those without STS (8.06 ± 3.99 vs 12.24 ± 10.99; $P = .029$].

Table 2.

Personal and Environmental Characteristics of Trauma Nurses (N = 128)[a]

Characteristic	
Age, years	Range 22-61, mean = 37.0 ± 10.7
Years nursing	Range 0.46-39, mean = 12.0 ± 10.7
Gender	N (%)
Male	20 (15.6)
Female	80 (62.5)
Ethnicity	
White	104 (84.4)
African American	10 (7.8)
Others	6 (4.7)
Education	
Diploma or ADN	32 (25.0)
BS/BA	83 (64.8)
MS/MA	8 (6.3)
Doctorate/other	2 (1.6)
Marital status	
Married or partnered	69 (53.9)
Single	46 (35.9)
Separated/divorced	11 (8.6)

[a]Not all respondents answered every question.

Table 3.

Characteristics of Trauma Nurses Related to Exposure to Traumatic Injuries of Others (N = 128)[a]

	Range	Mean = SD
Years trauma nursing	0.16-35	8.7 ± 9.2
Years current position	0.16-30	5.7 ± 7.2
Percent time in direct patient care	Number (%)	
<75%	34 (26.6)	
≥75%	79 (61.7)	
Hours work per week		
<32	15 (11.7)	
32-40	76 (59.4)	
>40	35 (27.3)	
Unit where employed		
Critical care	40 (34.5)	
Intermediate care	18 (14.1)	
Trauma resuscitation	17 (14.7)	
Acute care	13 (11.2)	
Operating room	11 (9.5)	
Postanesthesia care	10 (8.6)	
Shock trauma clinic	4 (3.4)	
Hyperbaric chamber	3 (2.6)	

[a]Not all respondents answered every question.

Related to exposure to the traumatic injuries of others (Table 6), there were no significant differences between trauma nurses who had high Penn Inventory scores and those who did not related to spending more than 75% of their time in direct patient care, length of their usual shift of less than 12 hours, or regularly working more than 40 hours per week. Total years in nursing and years in trauma nursing were different between the groups. Nurses with STS had fewer years of trauma experience (5.06 ± 1.86 vs 8.99 ± 9.46; $P = .001$). Years in current position did not differ between the groups. Too few nurses with traumatic stress worked in any unit to make meaningful

Table 4.

Coping Strategies Utilized by Trauma Nurses (N = 128)[a]

	N (%)
Stress relief strategies	
Hobbies	84 (65.6)
Exercise	78 (60.9)
Travel	58 (45.3)
Religion	31 (24.2)
Alcohol	25 (19.5)
Meditation	18 (14.2)
Professional counseling	11 (8.6)
Medicinal	6 (4.7)
Support systems	
Family	116 (90.6)
Friends	105 (82.0)
Coworkers	91 (71.1)
Pet(s)	59 (46.1)
Religious connections	34 (26.6)
Clubs	10 (7.8)
Other	5 (3.9)
Relationship with coworkers	
1 (negative/difficult) to <3	3 (2.5)
3 to <4	14 (11.7)
4 to <5	48 (40.4)
5 (Good/positive)	54 (45.4)

[a]Not all respondents answered every question.

comparisons. Of the 9 nurses who had Penn scores 35 or more, 4 worked in critical care units, 2 worked in intermediate care units, 1 worked in the trauma resuscitation unit, and 2 did not report the type of unit where they worked.

Fisher's exact tests were used to compare frequency of use of 2 types of coping strategies. When comparing those nurses whose Penn Inventory scores indicated no STS (Penn Inventory score <35) to those whose Penn Inventory scores indicated the presence of STS (Penn Inventory score ≥35), there were significant differences in use of support systems and stress relief strategies (Table 7). Within support systems, there tended to be a significant difference in use of friends ($P = .042$) and family ($P < .001$) between the 2 groups. Nurses who experienced secondary traumatic stress were less likely to obtain support from family and friends then those who did not experience this stress. Within the stress relief strategies category, there was a statistically significant difference in the use of hobbies ($P = .006$) and medicinals ($P = .005$) among the 2 groups. Nurses who experienced secondary traumatic stress were less likely to participate in hobbies and more likely to use medicinals.

The number and weighted strength of support systems used were compared between the groups. Nurses with Penn Inventory scores 35 or more indicated use of significantly fewer support systems than those who did not have STS ($P = .007$). Weighted strength of support was also significantly lower in nurses with STS compared with those who did not have STS ($P = .005$). There was no significant difference in trauma nurses with or without STS in their rating of relationships with coworkers ($P = .087$).

Table 8 summarized the significant characteristics common to trauma nurses in this sample with Penn Inventory scores that were near (≥30) or diagnostic (≥35) of STS compared with those who had lower scores.

DISCUSSION

Secondary traumatic stress was present in 7% of staff nurses working in a large, academic, urban level I trauma center. According to the Secondary Traumatic Stress Reactions model, exposure to trauma, coping strategies, and personal and environmental characteristics are factors related to the development of STS. Within this framework, the current study provides evidence to support the contributions of these characteristics to STS in trauma nurses.

Years of experience, number of hours worked per shift and per week, and percent of time in direct patient care were elements that were correlated with exposure to traumatic injuries of others within the framework. A recent study of critical care nurses reported a difference in the presence of traumatic stress related to working evenings or night shifts in trauma nurses.[3] Because of the limited sample size and because many of the respondents in the present study worked rotating shifts, the impact of shift work on development of STS could not be evaluated meaningfully.

The presence of STS was identified in nurses with fewer years of nursing and specifically fewer years of trauma nursing experience. This finding was contrary to conventional thinking that those nurses who had many years of exposure to traumatically injured patients would

Table 5.

Personal and Environment Characteristics of Trauma Nurses Who Did and Did Not Experience Secondary Traumatic Stress (N = 128)[a]

	No Traumatic Stress Penn <35, (N = 121), N (%)	Traumatic Stress Penn ≥35, (N = 9), N (%)	*P*
White	100 (87.0)	8 (88.9)	1.0
Female	74 (81.3)	6 (75.0)	0.647
Education ≥ Bachelors	85 (73.3)	8 (88.9)	0.445
Partnered	63 (53.8)	6 (66.7)	0.551
Age (y)	37.2 ± 11.0	37.7 ± 7.2	0.29
Years in nursing	12.2 + 11.0	8.1 + 4.0	0.029

[a]Not all respondents answered every question.

have greater STS. Of interest is the fact that the nurses with STS who had fewer years of experience were not, by and large, new or inexperienced nurses. These nurses averaged 8 years in nursing and 5 years in trauma nursing. Less STS in experienced nurses may be related to the use and greater strength of coping strategies and support systems. A consideration that was not investigated is the potential desensitization of nurses with more years of experience and exposure to trauma patients. Another possible reason could be that those nurses who experience

Table 6.

Characteristics Related to Exposure of Traumatic Injuries of Others in Trauma Nurses Who Did and Did Not Experience Secondary Traumatic Stress (N = 128)[a]

	No Traumatic Stress Penn <35, (N = 121)	Traumatic Stress Penn ≥35, (N = 9)	*P*
>75% Time direct patient care, N (%)	73 (69.5)	6 (75)	.548
Usual shift ≥12 hours, N (%)	107 (95.5)	9 (100)	1.0
Average hours > 40, N (%)	34 (29.1)	1 (11.1)	.432
Years in trauma nursing	9.0 ± 9.5	5.1 ± 1.9	.001
Years in current position	5.8 ± 7.4	4.5 ± 2.3	.23

[a]Not all respondents answered every question.

Table 7.

Coping Strategies of Trauma Nurses Who Did and Did Not Experience Secondary Traumatic Stress (N = 128)[a]

	No Traumatic Stress Penn <35, (N = 121), N (%)	Traumatic Stress Penn ≥35, (N = 9), N (%)	*P Values*
Stress relief strategies			
Exercise	74 (63.8)	4 (44.4)	.295
Hobbies	82 (70.7)	2 (22.2)	.006
Religion	30 (25.9)	1 (11.1)	.112
Meditation	18 (15.5)	0	.355
Travel	55 (47.4)	3 (33.3)	.502
Professional counseling	9 (7.8)	2 (27.2)	.18
Alcohol	22 (19.1)	3 (33.3)	.382
Medicinal	3 (2.6)	3 (33.3)	.005
Support systems			
Coworkers	87 (74.4)	4 (50.0)	.211
Friends	100 (85.5)	5 (55.6)	.042
Religious connections	34 (29.1)	0	.449
Clubs	9 (7.7)	1 (11.1)	.537
Family	112 (95.7)	4 (44.4)	<.001
Pet(s)	55 (47.0)	4 (44.4)	1.0
Other	4 (3.4)	1 (11.1)	.314
	Mean ± SD	Mean ± SD	
Number of supports	3.42 ± 1.16	2.25 ± 1.28	.007
Weighted (number and strength) supports	19.52 ± 7.23	11.87 ± 8.30	.005
Relationship with coworkers	4.37 ± 0.68	3.63 ± 1.06	.087

[a]Not all respondents answered every question.

high levels of STS leave trauma nursing for a different area of practice. Further research is required to investigate the relationships of STS and nursing experience.

Low use of support systems such as friends, families or outside groups, use of medicinals, and lack of hobbies were among the coping strategies that differed between nurses with and without STS as assessed with the Penn Inventory. On a Likert scale of 1 to 5, over 85% of the trauma nurses in this study rated their relationships with coworkers as good and positive (4 to 5). Although there was no statistical difference in between the mean coworker relationship scores, the nurses with STS scored their relationships with coworkers as poor or average. Similarly, others have identified that interpersonal conflicts in the working environment were related to traumatic stress in emergency department nurses.[2] Conversely "talking with

Table 8.

Common Characteristics of Trauma Nurses Related to High Penn Inventory Scores[a]

Characteristic	Penn ≥35, n = 9 (7%)	Penn ≥30, n = 16 (11%)
Fewer support systems	<.01	<.059
Lower "weighted support" = number of supports × strength of supports	<.005	<.01
Lower family support	<.005	<.005
Lower support from friends	<.05	NS
More likely use of medicinals	<.005	<.005
Less participation in hobbies	<.01	<.05

[a]All are *P* values.

colleagues" has been described by other investigators as the most helpful coping mechanism by trauma unit staff after distressing events.[25] The weighted support, that is the reported number and strength of supports, and the use of medicinals were the only variables that were both predictive of the Penn Inventory score and were different between nurses with and without STS. These data suggest that external support systems and relationships in the work environment may have an important mitigating effect on the incidence of STS related to the daily exposure of trauma nurses to seriously injured patients.

This study is limited by the characteristics of the subjects. The sample was relatively homogeneous; most participants were white, female nurses. The tool selected to measure stress in nurses, the Penn Inventory, has been validated in several populations,[21-24] but has not been used in nursing populations. However, reliability in the current sample was very good with the Chronbach's alpha of greater than 0.8. The wide range of specificity may indicate that the Penn Inventory may at times incorrectly identify individuals as having STS when in fact they do not, or that the converse may be true. The latter would be supported by the fact that nurses with Penn Inventory scores 30 or more reported the same support system, coping, and behavioral characteristics as those with scores 35 or more. (Table 8). A similar result was found in a population of women with substance use where a Penn Inventory score of 25 or more identified those with PTSD and minimized false negative and false positive rates.[26] Thus, examination of Penn Inventory score discrimination for STS warrants further investigation as the score associated with STS maybe lower than 35 as established in other populations.[21-24]

The sample of nurses from one urban trauma center may not be representative of all nurses who work in trauma centers or emergency departments. There also may be selection bias in the sample. Nurses who chose to participate in the study may be those who were experiencing more secondary trauma in the work environment, or those who were not experiencing high levels of trauma and had adapted well to the work environment. We have no information on those nurses who chose not to complete the surveys. The small sample size and relatively few numbers of nurses with STS limit the generalizability of the findings. Results of this study need to be considered with some caution because of the small sample size and the percent of variance in Penn Inventory scores predicted by exposure, coping, and personal and environmental characteristics. Despite the limitations of this study, the findings point to important relationships of stress in trauma nurses that requires further exploration.

This study is a preliminary step in examining how exposure to traumatic injuries of others, coping strategies, and personal and environmental characteristics of trauma nurses might lead to the development of STS. The limited number of studies that examine the relationship of trauma nursing to the development of STS supports the need for more studies to examine this phenomenon. It is important to understand the development of STS in nurses exposed to trauma to enable development of strategies to help nurses cope with STS. We cannot assume causal relationships, nor determine, for example, whether using medicinals

enhanced STS or whether use of medicinals was a response to STS or to other sources of stress.

Longitudinal studies would be needed to examine the development of coping strategies in concert with exposure to trauma. Future research should be directed toward further examination of specific coping strategies that trauma nurses might use to help offset or avoid the development of STS. In addition, it will be important to identify whether those nurses who did not develop STS inherently had better coping mechanisms and social supports or if they developed these over time. Replication of this study on a larger scale, including multiple trauma centers is warranted. As the literature on stress responses in trauma nurses is limited, studies that examine these topics would be very valuable to the profession of nursing.

CONCLUSIONS

Nurses working in various settings of a trauma center may be challenged by daily, or near daily exposure to the traumatic injuries of others, which may lead to traumatic stress. Awareness of the factors associated with STS may help trauma nurses to prevent or offset the development of this condition. Nurses working with trauma patients need to consider how their environment, personal characteristics, exposure to traumatic injuries, or their sequelae, and coping strategies may be associated with STS. Support from others and relationships with coworkers may prevent or limit STS. In the current nursing shortage, elucidation of factors that lead to the development of STS is important. Prevention of STS in the nursing staff of trauma departments may have a positive impact on recruitment and retention of staff. Practices and policies should promote healthy work environments and positive relationships among coworkers. This study emphasizes the need for further investigation to explore the implications of STS for trauma nurses.

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