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Symptoms of Post-traumatic Stress Disorder Among Pediatric Acute Care Nurses

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Background

Nursing is well-recognized as a high-stress job with potential for negative psychological impact such as anxiety, depression and burnout syndrome (BOS). Acute care nurses, however, may be at particular risk for post-traumatic stress disorder (PTSD) given their exposure to life-threatening situations such as mass casualties or dying patients. The diagnosis of PTSD, defined by the Diagnostic and Statistical Manual of Mental Disorders version 4 (DSM-IV), requires either directly experiencing threat to oneself or witnessing a threat to others with feelings of intense fear, helplessness and horror (APA, 1994). Although originally described in combat victims, PTSD may result from a wider range of exposures than in its original conception.

Mealer et al found 20–30% of adult critical care nurses surveyed had PTSD symptoms related to their work, a rate significantly higher than the estimated prevalence among the general U.S. adult population of 3.5% and lifetime prevalence of 6.8% (Kessler, Berglund, et al., 2005; Kessler, Chiu, Demler, Merikangas, & Walters, 2005; Mealer, Burnham, Goode, Rothbaum, & Moss, 2009; Mealer, Shelton, Berg, Rothbaum, & Moss, 2007). As situations involving children are often seen as having greater psychological impact, pediatric nurses may be at particular risk for PTSD (Figley, 1995; O'Connor & Jeavons, 2003). Prior research has demonstrated that nurses may be at risk of secondary traumatic stress (STS) related to their work (Badger, 2001; Beck, In press; Maytum, Heiman, & Garwick, 2004; Meadors & Lamson, 2008; 'PTSD in nurses': the March viewpoint strikes a chord, 2005; Robins, Meltzer, & Zelikovsky, 2009). STS has been defined as “the natural, consequent

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The results of this study have not been presented in any other forum.

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behaviors and emotions resulting from knowledge about a traumatizing event experienced by a significant other...resulting from helping or wanting to help a traumatized or suffering person” (Figley, 1995). Individuals with evidence of STS may have PTSD-like symptoms. However, unlike PTSD, the chronicity and degree of functional impairment with STS has not been clearly defined (Elwood, Mott, Lohr, & Galovski, 2010). The Secondary Traumatic Stress Scale, the only scale to specifically focus on STS, only asks about symptoms within the past 7 days without a focus on functional impairment (Bride, Robinson, Yegidis, & Figley, 2004). In fact, among a sample of interviewed trauma workers, a majority did not have any interference with their work due to secondary traumatic symptoms (Ortlepp & Friedman, 2002). Despite these differences, much of the literature has focused upon STS rather than PTSD among pediatric nurses. Yet, PTSD could have a significant impact on the individual nurse’s well-being, nursing retention and potentially the care of patients.

Thus, we conducted this study to better understand the prevalence of potential PTSD among pediatric nurses, work-related risk factors, and impact on perceived job satisfaction. Because burnout has clearly been demonstrated among the nursing workforce and is a large component of compassion fatigue (which includes both STS and burnout symptoms), we also sought to measure the presence of burnout syndrome within this cohort and the impact of having potential PTSD with and without BOS (Acker, 1993; Devilly, Wright, & Varker, 2009; Firth, McIntee, McKeown, & Britton, 1985; Kanste, Miettunen, & Kyngas, 2006; Kennedy & Barloon, 1997; Maytum, et al., 2004; Oehler & Davidson, 1992; Ostacoli, et al., 2010; Poghosyan, Aiken, & Sloane, 2009; Poncet, et al., 2007). We would expect that the rate of burnout syndrome, with feelings of emotional exhaustion, depersonalization and lack of personal accomplishment, to be significant but separate from PTSD symptoms (Maslach, Jackson, & Leiter, 1996; Maslach, Schaufeli, & Leiter, 2001). Furthermore, as other anxiety disorders as well as depression are risk factors for PTSD, we screened for the presence or absence of these co-existing symptoms. Our hypothesis was that BOS would be significant among all units surveyed but that nurses working in high intensity areas such as oncology, the intensive care unit (ICU) and the emergency room (ER) would have significantly higher rates of potential PTSD.

Methods

This study was approved, with the need for informed consent waived, by the Colorado Multiple Institutional Review Board at the University of Colorado, Denver.

Participants and Design

Participants were nurses employed at a tertiary care children’s hospital with a wide referral base and level 1 trauma services. Nurse managers for general medical, surgical and oncology wards as well as the pediatric intensive care unit (PICU) and emergency room (ER) were contacted regarding potential participation. A member of the research team met personally with each interested nurse manager and explained the purpose of the study, with a focus on PTSD. However, they were encouraged not to inform the study participants of the specific aims as to reduce bias. After agreeing to participate, each nurse manager was given an appropriate number of surveys to be placed into each nurse’s mailbox during the study period, December 2008-March 2009.

Each survey contained a cover letter stating that the purpose of the study was to determine how individual nurses were affected by working in a stressful environment as well as the voluntary nature of participation. The specific focus of PTSD, anxiety, depression and BOS were not mentioned to reduce response bias. Surveys were anonymously completed, sealed in a blank envelope and returned to the designated unit location for collection by a research team member. The survey contained questions regarding demographic information (age,

gender, race, general health, marital status, family) and education and work experience. Additionally, questions focused on the work environment and perceptions of team members/team work were included. Nurses were asked about potential stressors associated with their pediatric work and the presence of nightmares, severe anxiety or panic, severe pain or shortness of breath in relation to these stressors. Finally, the survey included three validated instruments to identify PTSD symptoms, screen for symptoms of anxiety and depression, and identify BOS (further described below). Nurses were grouped according to unit type defined as “high intensity” (ICU, ER and oncology) or “low intensity” (general medical or surgical ward). For comparative analyses, nurses were then grouped by the presence and/or absence of PTSD symptoms and/or BOS.

Definition of Measured Conditions

The study survey evaluated four psychiatric/psychological conditions: Post-traumatic Stress Disorder, Anxiety, Depression and Burn-out Syndrome.

Post-traumatic Stress Disorder (PTSD)—PTSD is an anxiety disorder with specific diagnostic criteria as defined by the DSM-IV. These criteria include: 1 or more re-experiencing symptoms (having upsetting thoughts or images about the traumatic event, bad dreams or nightmares, reliving the traumatic event, feeling emotionally upset when reminded of the traumatic event), 3 or more avoidance symptoms (avoiding activities, people or places that remind them of the traumatic event, not being able to remember an important part of the event, feeling emotionally numb, feeling as if your future plans or hopes will not come true), and 2 or more arousal symptoms (having trouble falling or staying asleep, feeling irritable or having fits of anger, having trouble concentrating, being overly alert, being jumpy or easily startled). These exhibited symptoms must be related to the individual’s *direct* experience with a traumatic event *or* indirect exposure to a threat to others *and* feelings of intense fear, helplessness or horror. Finally, these symptoms must have been present for at least 1 month and result in some degree of impairment for a final diagnosis of PTSD.

Anxiety disorders—This broader set of diagnoses include the specific conditions of: generalized anxiety disorder, social anxiety disorder, phobias, panic disorders, obsessive-compulsive disorders, acute stress disorder as well as PTSD. Each disorder holds a common primary feature of an abnormal or inappropriate sense of apprehension with symptoms of restlessness, being easily fatigued, difficulty concentrating, irritability, muscle tension and disturbed sleep. The symptoms then lead to interference with normal life functioning. Anxiety disorders, as a group, are very common with an international lifetime prevalence of 16% (Somers, Goldner, Waraich, & Hsu, 2006).

Depression—Depression is categorized under the mood disorders within the DSM-IV with an estimated lifetime prevalence of 6% across the world (Waraich, Goldner, Somers, & Hsu, 2004). Its symptoms can vary with each individual but includes a depressed mood or loss of interest/pleasure in daily activities lasting for a minimum of two weeks. These symptoms then have negative consequences in the individual’s routine activities and/or relationships.

Burnout Syndrome (BOS)—Burnout is a “state of physical, emotional and mental exhaustion caused by long term involvement in emotionally demanding situations” (Pines & Aronson, 1988). In addition to the emotional exhaustion component (EE), Maslach’s definition expands this phenomenon to include feelings of cynicism and detachment from the job (depersonalization, DP) and a sense of ineffectiveness and lack of accomplishment

(personal accomplishment, PA) (Maslach, et al., 2001). Significant symptoms in each area, alone or together, comprises burnout syndrome.

Survey Instruments

To assess for the conditions described above, three validated self-response instruments were used.

The Post-traumatic Diagnostic Scale (PDS) (Foa, Cashman, Jaycox, & Perry, 1997) is a validated self-report tool is used to measure PTSD symptom severity and yield a diagnosis for PTSD according to the DSM-IV. Questions focus on the three major diagnostic criteria as described above. Responses are based on a 4-point scale (from “not at all or only one time” to “5 or more times per week/almost always”). In its original validation study, the PDS demonstrated high internal consistency (alpha coefficient 0.92) and test-retest reliability (kappa 0.74 and 87% agreement) (Foa, et al., 1997). For this study, nurses were asked to answer these questions related to potentially traumatic events experienced while working such as those related to end-of-life care, witnessing trauma, direct personal threats or the general work environment. Although the PDS has been validated against a structured clinical interview for the diagnosis of PTSD, given the limitations of an anonymous self-administered survey, we used this instrument to assess the presence of PTSD symptoms and characterize the risk of a PTSD diagnosis.

The Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) is a self-report questionnaire includes 7 anxiety items and 7 depression items with a 4-point Likert response scale. The HADS was originally designed to screen for potential anxiety or depression in an outpatient population, but has been validated and used in multiple populations including nurses (Aylard, Gooding, McKenna, & Snaith, 1987; Bjelland, Dahl, Haug, & Neckelmann, 2002; Ostacoli, et al., 2010; Sanne, Mykletun, Dahl, Moen, & Tell, 2003). Among these studies, the internal consistency was high with an average alpha coefficient of 0.83 for HADS-A and 0.82 for HADS-D (Bjelland, et al., 2002). Using a cut-off of 8 or greater on each subscale, the specificity for HADS-A and HADS-D ranged from 0.72–0.94, and 0.68–0.95 respectively. The sensitivity for HADS-A and HADS-D ranged from 0.64–0.94 and 0.70–0.91 respectively. Thus, a score of greater than 8 for each subscale was defined as a positive screen for anxiety or depression.

The Maslach Burnout Inventory (MBI), Human Services version (Maslach, et al., 2001) is a self-report tool examines the three independently scored dimensions of BOS described above: emotional exhaustion (EE), depersonalization (DP) and lack of personal accomplishment (PA). Each question focuses on the frequency of certain feelings related to a respondent’s work environment on a 7-point Likert scale (from “never” to “every day”). For our study, moderate to high burnout symptoms in respondents were defined as greater than 17 on the EE scale, greater than 7 on the DP scale, and/or less than 39 on the PA scale based on the MBI scoring manual. These scores are based on the normative distribution within the U.S. population (Maslach, et al., 1996). The MBI has been validated with high internal consistency, with reported Cronbach coefficients ranging from 0.71–0.90 (Gil-Monte, 2005; Kalliath, O’Driscoll, Gillespie, & Bluedorn, 2000; Vanheule, Rosseel, & Vlerick, 2007).

Statistical analyses

Descriptive statistics were used to characterize the nurse respondent cohort. To assess for internal reliability, Cronbach alpha coefficients were calculated for each instrument. Comparative analyses were performed with student’s t-test and chi-squared analyses for normally distributed data. For comparisons of three or more group means on a single

response variable, ANOVA analysis was completed. Nonparametric testing was used as appropriate. All analyses were performed using STATA v.9 (StataCorp LP, College Station, TX).

Results

Of the 404 surveys distributed, 173 (43%) were returned with a relatively equal distribution across participating units. Slightly more respondents were working in “high intensity” units, 96/173 (56%) vs 77/173 (44%). In general, subjects were female, non-hispanic white, in their mid-30’s, were the primary source of income in their household, and were with a stable partner (Table 1). The internal reliability for each instrument was found to be high in this cohort: PDS α 0.92, HADS α 0.85 and MBI α 0.89.

A majority of surveyed nurses, 82% (95% Confidence Interval [C.I.] 76–88%), reported at least one type of psychological symptom (Table 2). Based on the PDS, 36 nurses (21%, 95% C.I. 15–27%) met criteria for PTSD with three-quarters experiencing symptoms for over 3 months prior to the survey. There was no significant difference in the PTSD symptom prevalence between the five surveyed nursing areas (General medical 22%, general surgical 20%, oncology 19%, ICU 17% and ER 29%). Positive screens for anxiety and depression by the HADS were seen in 27/137 (16%, 95% C.I. 10–21%) and 17/173 (10%, 95% C.I. 5–14%) of nurses, respectively. Additionally, there was a high rate of burnout symptoms as identified by the MBI. Almost half (45%, 95% C.I. 37–52%), had emotional exhaustion, 64 (38%, 95% C.I. 31–45%) showed high depersonalization, and 78 (46%, 95% C.I. 39–54%) felt low personal accomplishment.

Related to their nursing work, the most common symptom was nightmares (49%), followed by severe anxiety (19%) and panic (8%). Stressors related to work conditions, including feeling overextended, fear of adverse events related to their care and unpleasant team interactions, were the most frequently cited reasons for both nightmares and severe anxiety (Figure 1). The second most common source for both nightmares and severe anxiety were potential direct threats such as combative patients and verbal abuse from family members.

Comparing nurses with significant symptoms of PTSD to those without, there were no statistically significant differences in demographic characteristics or educational background. However, nurses with PTSD symptoms were slightly older with longer working experience in their current area than those who did not (median age 35 vs 31, $p=0.06$; median years in current area 6 vs 3, $p=0.08$). A similar proportion, 36%, within each group had their own children, but more nurses with potential PTSD reported having children of their own requiring more than routine health care (38% vs 10%, $p=0.01$). The nurses with potential PTSD were also less likely to describe themselves as having excellent health (39% vs 69%, $p=0.003$). Among nurses with potential PTSD, there were higher rates of self-reported nightmares, severe anxiety, shortness of breath, severe pain, as well as positive screens for anxiety or depression and burnout syndrome (Table 2). They were also much more likely to be considering a change in career, 50% vs 25%, $p=0.005$.

Considering potential overlap between post-traumatic stress disorder and burnout syndrome, respondents were stratified by the presence or absence of a positive test for PTSD and/or BOS for further comparative analyses (Table 3). The three comparative groups were nurses whose surveys suggested: (1) no PTSD or BOS, (2) BOS but no PTSD, and (3) BOS and PTSD. Three nurses whose PDS were consistent with possible PTSD but no BOS were not included in the analysis given their small sample size.

Although those with significant PTSD symptoms and BOS were slightly older and had longer work experience as compared to those without either problem or those with only

BOS, these differences did not meet statistical significance. However, there were statistically significant differences among the three groups in their perceptions regarding the work environment and team members. (Table 3) Nurses who did not have PTSD or BOS generally felt more positively about their work environment, with more confidence in their nursing and physician colleagues as well as feeling a part of a team. They also felt the direct patient care provided was a primary factor in the outcome of their patients. Nurses with BOS and a positive PDS for PTSD, on the other hand, were more likely to respond negatively regarding their team members, teamwork and the impact of their work. Furthermore, nurses with BOS and a positive PDS for PTSD more frequently screened positive for anxiety and depression as compared to those without BOS or PTSD and those with BOS alone ($p<0.001$). Finally, 58% of nurses with a positive PDS for PTSD and BOS were considering a change of career as compared to 34% of those with just BOS and 11% without either condition ($p<0.001$).

Examining how symptoms listed on the PDS affected areas of their lives within the last month based on the presence or absence of significant PTSD and BOS symptoms, we found significant differences (Table 4). Few of the nurses who did not have significant PTSD or BOS symptoms or who had only BOS described symptoms interfering with their life. On the other hand, a large portion of nurses with both BOS and significant PTSD symptoms found their symptoms interfered with their work as well as their personal lives.

Discussion

The stress associated with nursing work has long been acknowledged and in the current medical system, may be even greater than initially recognized. Most nurses, pediatric or not, consider events related to children as having high impact and discussions about potential work-related PTSD have appeared in the nursing literature (Badger, 2001; O'Connor & Jeavons, 2003; 'PTSD in nurses': the March viewpoint strikes a chord, 2005; Stewart-Amidei, 2005). However, although pediatric nurses have been found to be at risk for compassion fatigue, particularly with higher levels of work-related stress, research evaluating actual PTSD among pediatric nurses is limited (Maytum, et al., 2004; Meadors & Lamson, 2008; Robins, et al., 2009). We found high rates of a PDS suggestive of PTSD among pediatric acute care nurses as compared to the general population, similar to findings in other adult nursing cohorts (Kessler, Berglund, et al., 2005; Kessler, Chiu, et al., 2005; Mealer, et al., 2007). Higher rates were seen, not only in high intensity areas, but also on the general wards as well. Nurses with significant PTSD symptoms were also more likely to report co-existing symptoms of anxiety and depression and had high rates of burnout-syndrome. As compared to nurses who did not have either significant PTSD or BOS symptoms and those with BOS only, nurses with tests positive for both PTSD and BOS were less likely to respond positively about their team members, teamwork and their work impact. Additionally, they more often reported their symptoms affected all areas of their life and were considering a change of career.

Surprisingly, our findings did not support the original hypothesis of higher rates PDS scores suggestive of PTSD in areas with frequent high intensity situations or end-of-life issues such as the ICU, the ER and oncology ward. Previous work in a non-pediatric nursing cohort also demonstrated similar prevalence rates among hospital nurses, irrespective of their particular unit (Mealer, et al., 2009). In our study, the stressors most commonly causing nightmares and anxiety were not end-of-life issues or witnessing violent trauma but rather, were related to work conditions such as feeling overextended, fear of adverse events due to their care, poor team interactions as well as direct threats such as combative patients and verbal abuse from family members. Other studies evaluating nursing perceptions of events related to high stress or having significant impact describe similar findings (Dearmun, 1998; O'Connor &

Jeavons, 2003; Rassin, Kanti, & Silner, 2005). These stressors are unlikely to be unique to any particular unit but rather to the field of nursing care, and thus may explain the uniformly increased rates of PTSD symptoms found across units.

Furthermore, these stressful experiences, not usually seen as catastrophic, are more likely to be recurring, and therefore, may contribute to the development of PTSD in a vulnerable population over time. This potential cumulative effect may then explain why nurses with potential PTSD were slightly older with more years of practice rather than a young, inexperienced nurse faced with crisis. These findings indicate a need for a broader examination of potential risk factors in pediatric nursing associated with PTSD. While there has been work related to PTSD in nurses, primarily adult, after catastrophic events such as mass casualties or disasters, PTSD related to other types of work-related events as identified by nurses surveyed here is truly under-explored (Battles, 2007; Cudmore, 1996; Laposa & Alden, 2003; Laposa, Alden, & Fullerton, 2003; Rassin, et al., 2005). The approach to identifying PTSD resulting from these non-catastrophic experiences as well as reducing its risk may need to be quite different and involve a multi-disciplinary effort by nurses, physicians and administrators. Improving the work environments contributing to these high-impact stressors requires recognition of the problem by all team members as well as systemic changes. Based on our study results, a few example changes may include increasing resources during high census/high acuity times, team building and conflict resolution as well as implementing no-tolerance policies regarding aggressive family members. However, reduction of individual events is not likely to be sufficient. A nurse's perception of the event and ability to handle their response plays a critical role in the event's impact on their psychological well-being, personally and professionally, and thus, needs to be incorporated into any therapeutic or preventative efforts (Burns & Rosenberg, 2001).

Some question if PTSD is actually just burnout syndrome. Yet, our data demonstrates that, while there is an understandable overlap, they are distinct entities in terms of prevalence, co-existing psychological symptoms and effects on work and personal life (Acker, 1993). Both BOS as well as PTSD would be expected to affect work satisfaction, and our survey results reflect this effect. A considerable number of nurses with BOS were considering a change in careers but those with both high BOS and PTSD symptoms were much more likely to feel their symptoms interfered with their work and were twice as likely to be considering a career change. Thus, while the severe national nursing shortage is multi-factorial and complex in its etiology, PTSD and its potential triggers may carry a significant contribution. Addressing PTSD among these health professionals could lead to not only improved personal well-being for the individual nurse but also direct and indirect positive effects on patient care and the healthcare system (Coomber & Barriball, 2007; Sengin, 2003; Stechmiller, 2002; Steinbrook, 2002).

Several limitations of our study warrant discussion. As a single-center study, the generalizability of our findings is uncertain. However, we do not have strong reason to believe our center is significantly different from other tertiary pediatric hospitals across the United States. Additionally, as our study was a cross-sectional survey, we cannot make any comments on trends, persistence of symptoms, or incidence rates. While our response rate was within average for survey data, we did not capture a majority of nurses and are at risk for response bias. Due to the voluntary and anonymous nature of our study, we do not know in which direction this bias lies: are those who have PTSD less likely to respond to avoid reminders of difficult stressors or are they more likely to respond because they are feeling overwhelmed by their situation. Furthermore, we used the PDS to diagnose PTSD instead of the gold standard clinical-administered PTSD scale (CAPS). However, the PDS is highly correlated with the CAPS for diagnosing PTSD and thus is likely appropriate for use in survey studies in which anonymity is important (Adkins, Weathers, McDevitt-Murphy, &

Daniels, 2008; Ehring, Kleim, Clark, Foa, & Ehlers, 2007; Foa & Meadows, 1997; Griffin, Uhlmansiek, Resick, & Mechanic, 2004; McCarthy, 2008; Mueser, et al., 2001; Sheeran & Zimmerman, 2002).

Finally, a limitation in our study as well as a major challenge in the field is the differentiation between secondary traumatic stress, compassion fatigue and PTSD. Prior studies have, on occasion, blurred these lines with overlapping or interchangeable definitions and different scales to assess the presence and impact of each phenomenon. Yet, there are differences as described in the introduction which may underscore different conceptual theories as well as management/treatment approaches. Our study, with its voluntary and anonymous nature, cannot definitively connect the highly stressful events identified by the respondents to the symptoms of PTSD. The second most common type of stressors involved combative patients and verbal threats from family members. These types of events might fit the more classic PTSD-related traumatic event with real fear of personal harm. More frequently, respondents describe work conditions and team relationships as being the most stressful event. These more chronic types of stressors may not demonstrate as intuitive a link without personal interview. Yet, these may be examples of “serial and multiple microtraumas” suggested to be included in the next DSM revision (Seides, 2010). On the other hand, experiences such as witnessing trauma or end-of-life care, likely more relevant to phenomena such as secondary traumatic stress or compassion fatigue, were much less frequently described. Our focus was on PTSD for this study and thus, did not include scales specific for STS or compassion fatigue. Therefore, we could not elucidate more clearly the question of overlap and association between symptomatology and specific work-related stressors.

To the best of our knowledge, this is first study examining PTSD among pediatric acute care nurses, and the increased rates of PDS scores suggestive of PTSD among these providers highlights several opportunities for both therapeutic as well as preventative efforts. Further work needs to be directed towards replication of our results with studies in other pediatric acute nursing populations. Additionally, each step in the development of PTSD should be thoroughly evaluated for potential intervention, including a clearer identification of high risk work-related situations leading to PTSD symptoms, analysis of effective changes to reduce the presence of these situations as well as interventions to reduce the risk of PTSD if they do occur. Finally, determining effective and safe ways of identifying PTSD among pediatric nurses and providing support and therapy for those identified with PTSD is essential. Although PTSD may be a problem occurring in nurses, it is not a “nursing problem” alone and truly requires efforts on all fronts including physicians and administration. Only with a multi-disciplinary approach, will there be true potential of reducing PTSD and its negative effects among pediatric nurses. This approach may then result in improved job satisfaction, greater nurse retention and ideally, improved care of our pediatric patients.

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Figure 1.

Related stressors for reported nightmares or severe anxiety

* End of Life (Post-mortem care, providing futile care, performing CPR, seeing any patient die, having a long-term patient die, caring for a brain dead patient, not being able to save a specific patient), Witnessed trauma (open surgical wounds, trauma related injuries, massive bleeding, child abuse, seeing patients experience pain), work conditions (fear of adverse events due to your care, unpleasant interactions with other team members, feeling overextended due to inadequate staffing), direct threat (combative patients, verbal abuse from family members)

Table 1

Survey respondent characteristics

Characteristic	N = 173
Female gender	160 (93%)
Mean age $\pm$ SD, years (range)	35 $\pm$ 9 (23 – 59)
Marital status:	
Single	53 (31%)
Partner, not married	22 (13%)
Married	91 (53%)
Separated, Divorced or Widowed	7 (3%)
Race:	
Non-hispanic white	158 (91%)
African-american	0 (0%)
Hispanic, Asian, other or not identified	15 (9%)
Primary source of income	113 (66%)
Has children	62 (36%)
Bachelor of Science, Nursing degree as highest degree	154 (89%)
Primary current area of nursing:	
General medical	37 (21%)
General surgical	40 (23%)
Oncology	32 (19%)
Pediatric Intensive Care	36 (21%)
Emergency Room	28 (16%)
Median years in practice (mean $\pm$ SD, range)	5 (9 $\pm$ 9.0, 1– 37)
Median years in current area (mean $\pm$ SD, range)	4 (6 $\pm$ 7, 1– 35)
Considering change in careers	53 (31%)
Have taken steps to change careers	30 (17%)

Table 2

Prevalence of psychological symptoms among entire respondent cohort *

Symptom or diagnosis	Total nurse cohort N = 173	PTSD N = 36
Met criteria for PTSD by PDS	36 (21%)	--
Symptoms related to work:		
Nightmares	84 (49%)	31 (91%)
Severe anxiety or panic	32 (19%)	16 (50%)
Severe pain	14 (8%)	7 (50%)
Trouble breathing	9 (5%)	4 (44%)
Anxiety symptoms by HADS	27 (16%)	17 (47%)
Depression symptoms by HADS	17 (10%)	12 (33%)
BOS: Emotional exhaustion symptoms [†]	75 (45%)	29 (85%)
BOS: Depersonalization symptoms [†]	64 (38%)	25 (74%)
BOS: Low personal accomplishment symptoms [†]	78 (46%)	22 (65%)
Any BOS symptoms	118 (68%)	31 (91%)
Any Psychological symptom	142 (82%)	34 (95%)

* not mutually exclusive

[†] MBI not completed by 5 participants, 2 meeting criteria for PTSD

Table 3

Differences in characteristics and perceptions between nurses without burnout syndrome (BOS) or post-traumatic stress disorder (PTSD), those with BOS but not PTSD and those with both BOS and PTSD.

	No BOS or PTSD N = 46	BOS but no PTSD N = 87	BOS and PTSD N = 31	p-value
Mean Age (yrs)	34 ± 10	35 ± 9	37 ± 9	0.30
Mean Years in Practice	7 ± 9	9 ± 9	11 ± 10	0.28
Mean years in Current Area	6 ± 7	6 ± 7	8 ± 7	0.38
Current Area of Practice				0.52
General medical (n = 35)	15 (33%)	13 (15%)	7 (23%)	
General surgical (n = 39)	8 (17%)	23 (26%)	8 (26%)	
Oncology (n = 31)	10 (22%)	16 (18%)	5 (16%)	
Pediatric intensive care (n = 35)	8 (17%)	21 (24%)	6 (19%)	
Emergency room (n = 24)	5 (11%)	14 (16%)	5 (16%)	
How often nurses help each other with patient care? ^a	3.9 ± 0.3	3.6 ± 0.6	3.5 ± 0.6	0.001
I have confidence in the nurses with whom I work? ^b	3.7 ± 0.4	3.4 ± 0.6	3.2 ± 0.9	0.001
I have confidence in the physicians with whom I work? ^b	3.6 ± 0.7	3.5 ± 0.5	3.3 ± 0.7	0.11
I Feel like part of a team ^b	3.6 ± 0.5	3.3 ± 0.7	2.8 ± 1.1	<0.001
The direct patient care I provide is one of the primary factors affecting the outcome of those patients ^b	3.6 ± 0.5	3.5 ± 0.6	3.2 ± 0.9	0.01
Positive screen for Anxiety by the HADS	0 (0%)	10 (11%)	17 (55%)	<0.001
Positive screen for Depression by the HADS	1 (2%)	4 (5%)	12 (39%)	<0.001
Considering changing careers	5 (11%)	30 (34%)	18 (58%)	<0.001

^a – based on scale 0= “Never” 1= “Almost never” 2= “Sometimes” 3= “Fairly often” 4= “Very often”

^b – based on scale 0= “Strongly disagree” 1= “Disagree” 2= “Neither agree nor disagree” 3= “Agree” 4= “Strongly agree”

Table 4

Areas of life affected by symptoms within last month of survey

Areas of Life	No BOS or PTSD N = 46	BOS but no PTSD N = 87	BOS and PTSD N= 31	p-value
Work	4 (9%)	9 (10%)	17 (55%)	<0.001
Household Chores/Duties	5 (11%)	10 (12%)	14 (45%)	<0.001
Relationships with Friends	2 (4%)	7 (8%)	13 (42%)	<0.001
Fun and Leisure Activities	2 (4%)	7 (8%)	17 (55%)	<0.001
Schoolwork	0 (0%)	0 (0%)	3 (10%)	0.001
Relationships with family	3 (7%)	9 (10%)	10 (32%)	0.002
Sex	1 (2%)	7 (8%)	11 (35%)	<0.001
General Satisfaction with Life	3 (7%)	8 (9%)	19 (61%)	<0.001
Overall level of functioning in all areas of life	3 (7%)	5 (6%)	14 (45%)	<0.001