Using Proactive Coping to Manage the Stress of Trauma Patient Care

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ABSTRACT

Some emergency nurses are resilient following trauma patient care, while others report severe traumatic stress. The purpose of this study was to determine proactive coping behaviors used by emergency nurses to prevent traumatic stress. A cross-sectional research design was used with a national sample of emergency nurses. Participants completed a 5-component Web-based survey. Data analyses included 1-tailed partial correlations. The correlation of proactive coping score to traumatic stress was significant. Proactive coping strategies that focus on the planning and preparation to provide care for traumatically injured patients may be effective at preventing traumatic stress.

Key Words

Emergency nurse, Proactive coping, Trauma patient care, Traumatic stress

The nearly 200 000 emergency nurses in the United States[1] are at risk for experiencing symptoms of traumatic stress and decreased work productivity after providing trauma patient care (G. L. Gillespie, D. M. Gates, P. Succop, unpublished data, 2009). Traumatic stress occurs following a severe traumatic event. Examples of a person experiencing traumatic stress are having flashbacks and persistent reminders of a stressful event, attempting to avoid situations that remind him or her of the stressful event, and having a heightened state of alertness even after leaving work (G. L. Gillespie, D. M. Gates, P. Succop, unpublished data, 2009). In a preliminary, unpublished study, G. L. Gillespie, D. M. Gates, P. Succop (Unpublished data, 2009) found that 64% of participants in a national randomized sample of emergency nurses reported symptoms of traumatic stress and 28% reported decreased work productivity (eg, safe care, compassionate care) following the care of traumatically injured patients. It was not known why some emergency nurses did not exhibit signs of traumatic stress following trauma patient care while others reported severe signs of traumatic stress. Thus, it was the purpose of this study to determine the relationship of effective proactive coping behaviors to the occurrence of traumatic stress in a national sample of emergency nurses who provide care to traumatically injured patients. Understanding this problem is essential to improving the health of emergency nurses and ultimately improving the emergency nursing care of trauma patients.

The central hypothesis for this study was that as the use of proactive coping behaviors by emergency nurses providing trauma patient care increases, there would be a significant decrease in traumatic stress. Proactive coping behaviors are actions specifically used by a person to manage personal stress before a severe stressor occurs. We developed our hypothesis on the basis of the pilot data by G. L. Gillespie, D. M. Gates, P. Succop (Unpublished data, 2009). The rationale for conducting this study was the need to identify the proactive coping behaviors that most effectively decrease traumatic stress. The proactive coping behaviors can then serve as the basis for the future development of an intervention to prevent traumatic stress in emergency nurses and ultimately improve their ability to provide safe and compassionate nursing care to their trauma patients. The study purpose was addressed through 2 aims: (1) determine the relationship between proactive coping behaviors and traumatic stress and (2) explore the relationship between individual proactive coping behaviors and traumatic stress to determine which behaviors are most effective for controlling traumatic stress.

BACKGROUND

The framework for this study was Goh and colleagues' Revised Transactional Model of Occupational Stress and Coping.[2] The model has 5 assumptions: (1) a primary appraisal of an event will determine whether the situation is a threat, challenge, or benign; (2) a secondary appraisal of an event will determine what can be done regarding the situation; (3) traumatic stress will be experienced following the primary and secondary appraisals; (4) coping strategies will be deployed to mitigate the stress; and (5) some degree of stress will continue to be experienced after coping strategies are deployed.

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Several events or situations can be appraised as threats by nurses. Specific nursing situations include providing disaster management and relief,[3] experiencing workplace violence,[4-6] seeing patients die,[7,8] and the focus of our study: providing trauma patient care.[6-8]

A specific personal history of trauma (eg, interpersonal violence, sexual assault, robbery victim) is also linked to traumatic stress.[9-13] In addition, the greater the number of personal traumas experienced, the more negatively a person will be affected.[10] This personal history of trauma will affect not only the traumatic stress response but also the individual's secondary appraisal of the situation.

The traumatic stress experienced by nurses following the primary and secondary appraisals of an event may vary. Robinson et al[14] studied the traumatic stress experience in 295 Canadian nurses, finding that 65% of the sample had worked with trauma survivors and 35% (n = 103) experienced symptoms of intrusive thoughts, arousal, and avoidance. Of the 103 participants, 59% reported that providing trauma patient care negatively affected their personal lives. Gates et al[4] and Gillespie et al[5] identified a decrease in emergency nurses' ability to adhere to the cognitive and workload demands of emergency care after a stressful work event. Other responses from workers suffering from traumatic stress include distressing emotions, difficulty thinking, withdrawal from patients, absenteeism, and job changes.[5,15] The ultimate negative stress reaction may include unsafe patient care. G. L. Gillespie, D. M. Gates, P. Succop (Unpublished data, 2009) discovered that 28% (n = 58) of emergency nurses reported a decreased ability to provide general nursing care after providing trauma patient care.

Kira et al[10] reported that proactive coping behaviors can be effectively used to mitigate traumatic stress. Examples of proactively coping with stressful situations are taking breaks from the stress situation,[5] participating in formal or informal critical incident stress debriefings,[5,6,10] thinking positively, and being prepared for negative stress.[10]

It is highly likely that emergency nurses can be adversely affected when encountering extremely stressful trauma patient care situations. We hypothesized that the reasons some emergency nurses react to stress so negatively are related to an effect of cumulative personal trauma and/or a lack of proactive coping behavior usage. As a result, this study is significant in determining how proactive coping behaviors mitigate traumatic stress thereby increasing emergency nurses' ability to provide safe and compassionate nursing care to patients with traumatic injuries.

METHODS

A cross-sectional exploratory correlational design was used to test the study hypothesis: as the use of proactive coping behaviors by emergency nurses providing trauma patient care increases, there would be a significant decrease in traumatic stress when controlling for cumulative personal traumas. Institutional review board approval was granted following a convened full board review. Permission to conduct the study and access the study population was provided by the Emergency Nurses Association (ENA; Des Plaines, Illinois).

Sample

Participants were recruited from a national sample of practicing emergency nurses with membership in the ENA. The ENA is a professional nursing specialty organization with more than 40 000 members. A systematic randomized sample of 2300 names with the US mailing addresses was provided by the ENA. There were 165 emergency nurses who ultimately participated in the study. Twenty-eight cases were excluded, because they completed less than 90% of at least 1 instrument from the study survey. This left data from 137 participants for data analysis, more than the desired sample size of 95 to yield 80% power based on an a priori power analysis.

A post hoc power analysis was conducted using G*Power 3.0.[16] Assuming an effect size of 0.25 and $\alpha = .05$, the study yielded a power of 91.3% for 137 participants; therefore, the study's sample size was large enough to address the study's specific aims without the risk of a type II error.

Procedures

Recruitment postcards were mailed to the study sample. Postcards provided general study information and the address for the Web-based survey collector. Interested participants typed the URL address for the study survey into their Web browser address bar.

The first page of the Web-based study survey described human subjects' protections and informed consent information. Study participation was voluntary. Participants were notified through the consent page that they should contact the National Suicide Hotline, their Employee Assistance Program, a primary care provider, or other mental health specialist for a mental health screening and examination should they experience any symptoms of depression or suicidal ideation when reflecting on the event in which they provided trauma patient care. There were no reports of distress from the participants as a result of completing the study survey.

Measurements

The study survey consisted of 5 instruments. The first instrument was the Trauma Patient Event Questionnaire, which was investigator-developed and asked participants to recall the care of a trauma patient care event within the previous 30 days that caused them the most negative stress. Questions asked about the trauma patient encounter: patient demographics (age, gender, mechanism of

injury, outcome of trauma care), participants' role during trauma care, and whether participants themselves spent time afterward resting or being debriefed.

The second instrument was the Impact of Events Scale–Revised, a 22-item survey measuring traumatic stress[17] with demonstrated internal consistency of its subscales ranging from 0.79 to 0.87.[11,18] Participants were asked to report the symptoms of traumatic stress experienced during the week following care of the traumatically injured patient. Responses to the survey items were summed to yield a score measuring traumatic stress ranging from 0 to 88. Higher traumatic stress scores indicated more severe traumatic stress.

The third instrument was the Proactive Coping Inventory, which is a 55-item survey measuring proactive planning, coping, and using resources to successfully manage stressful situations with good internal consistency reliability (α = .64-.85) and construct validity.[19] Participants were asked to assess their skills for coping with distress on the basis of the use of proactive coping strategies. Responses to the PCI survey items were summed to generate a score measuring proactive coping ranging from 0 to 165. Higher proactive coping scores reflected a greater use of proactive coping strategies. Proactive coping scores were then grouped as occasional use of proactive coping strategies (PCI score, 0-55), moderate use of proactive coping strategies (PCI score, 56-110), and consistent use of proactive coping strategies (PCI score, 111-165).

The fourth instrument was the Cumulative Trauma Scale–Short Form (CTS-SF), a 32-item survey used to measure personal trauma.[10] The CTS-SF acknowledges the synergistic effect that multiple personal traumas have on an individual. The CTS-SF has a high internal consistency reliability (α = .847) and appropriate construct and predictive validity.[10] The CTS-SF item responses were coded as 0 if the trauma was never experienced and 1 if the trauma was ever experienced. Responses were summed to generate a score measuring cumulative personal trauma ranging from 0 to 32. Higher personal trauma scores were indicative of a greater variety of personal traumas during the nurse's lifetime.

The fifth instrument was a short demographic questionnaire. Items asked participants about their age, race, gender, and work setting.

Data Analysis

The study hypothesis was evaluated through 2 specific aims. Aim 1 determined the relationship between the overall use of proactive coping behaviors and traumatic stress in the study population. A 1-tailed partial correlation was computed to correlate the proactive coping score to the traumatic stress score, while controlling for the cumulative personal trauma score.

Aim 2 explored the relationship between individual proactive coping behaviors used by the study sample and traumatic stress to determine which behaviors were most effective for controlling traumatic stress. The responses for each PCI survey item were correlated to the traumatic stress score, while controlling for the cumulative personal trauma score using 1-tailed partial correlations. Items with significant and negative correlations were deemed as most effective for preventing traumatic stress. Alpha was set at .05 for all analyses.

FINDINGS

There were 137 emergency nurses who provided trauma patient care whose data were used for analyses (Table 1). The mean age of participants was 41.7 years ranging from 24 to 61 years. The mean number of years of registered nursing experience was 16.1, ranging from 1 to 40 years. The mean number of years of emergency nursing experience was 11.3, ranging from 1 to 35 years. The majority of participants were women (n = 114; 83%), white (n = 126; 93%), and bachelor's degree prepared (n = 84; 62%). The majority of participants worked in an urban-based emergency department (n = 56; 41%), provided care to both adult and pediatric patients in a general emergency department (n = 98; 72%), and had an annual emergency department census between 25 000 and 75 000 patients. Participants primarily worked 8-hour or 12-hour day shifts (n = 83; 62%). Personal trauma scores ranged from 2 to 23 with a mean of 9.4 previous personal traumas, indicating that each participant had previously experienced multiple personal traumas (Table 2). Traumatic stress scores ranged from 0 to 54 with a mean of 11.7.

Characteristics of the Trauma Care Events Appraised as Stressful

Stressful patient care events described were primarily patients injured as a result of non–violence-related trauma (n = 83; 61%). Prior to the arrival of the trauma patient to the emergency department, a patient briefing occurred for a majority of the trauma patient care events (n = 86; 63%). However, a debriefing after providing trauma patient care (n = 23; 17%) with the intent of managing the participant's traumatic stress rarely occurred. A variety of patient dispositions followed trauma care including transfer to another emergency department or hospital, admission, discharge, and morgue. During the care of the trauma patient, the majority (n = 73; 53.3%) of the study participants were responsible for both documentation and direct patient care. Approximately 23% (n = 31) of the participants believed that the trauma patient reminded them of a family member or personal friend. Fewer than a third (n = 41) of the participants took a break immediately after the trauma patient care. Additional details for the stressful trauma patient care events are presented in Table 3.

TABLE 1 Description of the Study Sample

	n	%
Sex		
Female	114	83.2
Male	23	16.8
Race		
White	126	93.3
African American	3	2.2
Asian/Pacific-Islander	3	2.2
Other	3	2.2
Ethnicity		
Hispanic/Latino	3	2.3
Not Hispanic/Latino	130	97.7
Educational attainment		
Diploma prepared	6	4.4
Associate's degree	25	18.4
Bachelor's degree	84	61.8
Master's degree	19	14
Doctoral degree	2	1.5
Urbanicity of the emergency department		
Rural	38	27.7
Suburban	43	31.4
Urban	56	40.9
Patient population		
General emergency department	98	72.1
Adult-focused emergency department	29	21.3
Pediatric-focused emergency department	9	6.6
Annual emergency department census		
<25 000	18	13.6
25 000-49 999	37	28
50 000-74 999	36	27.3
75 000-99 999	27	20.5
≥100 000	14	10.6
Shift worked		
Day shift	83	62.4
Evening shift	20	15
Night shift	30	22.6

Proactive Coping Strategies Deployed by the Sample

Leading proactive coping strategies identified as "somewhat true" or "completely true" were getting feedback from friends, planning strategies, and being a "take charge" person. Proactive coping scores ranged from 77 to 165 with a mean proactive coping score for participants of 117.2 (Table 2). There were no participants with an occasional use of proactive coping strategies. A moderate use of proactive coping strategies occurred with 44 participants (32.1%). The majority consistently used proactive coping strategies (n = 93; 67.9%).

Findings in Relation to the Specific Aims

Descriptive statistics for Aim 1 included a mean proactive coping score of 117.2, mean traumatic stress symptoms' score of 11.7, and mean cumulative trauma score of 9.4. The results of the 1-tailed partial correlation were significant although small (r134] = .185, P = .015), indicating that as traumatic stress increased, there was a small, but significant increase in the use of proactive coping strategies.

For Aim 2, there were 17 one-tailed partial correlations significant at $P < .05$ (see Table 4). Because of the rule of multiplicity, there was a risk that a correlation significant at $P < .05$ could have occurred by chance leading to a type I error. After adjusting the alpha level to .01, 3 significant correlations for proactive coping strategies remained: (1) I plan my strategies to change a situation before I act, $r(134) = .339$, $P < .001$; (2) I plan strategies for what I hope will be the best possible outcome, $r(134) = .225$, $P = .004$; and (3) before tackling a difficult task, I imagine success scenarios, $r(134) = .215$, $P = .006$.

DISCUSSION

There was an overall significant correlation, albeit small, between proactive coping and traumatic stress; however, the correlation was positive rather than negative as hypothesized. This may be due to emergency nurses deploying proactive coping strategies only after a severe traumatic stress event rather than a continual use of proactive coping strategies to prevent the onset of severe traumatic stress symptoms. This finding and assumption support the 6-path Revised Transactional Model of Occupational Stress and Coping described by Goh et al.[2] Buurman et al[20] discovered a similar anomaly in their study of traumatic stress with nurses working in a medical department and found a positive relationship between seeking social support and traumatic stress following a personally traumatic experience in the workplace (eg, failed resuscitation, emergency situation, aggression). The researchers posited that while nurses might use social support as a coping strategy, the effectiveness of the social support might be limited. In our study, it is possible that the nurses used proactive coping strategies, but they too may not have been using the strategies effectively due to a heightened state of arousal or a recurrence of intrusive images throughout the day. However, it is equally possible that the proactive coping strategies were indeed effective and without their use, the relatively low traumatic stress scores seen in this study could have

TABLE 2 Summary Findings for Participants' Traumatic Stress, Proactive Coping, and Cumulative Personal Trauma

Variable	Instrument	Number of Items	Range	Mean	SD	Cronbach α
Traumatic stress	Impact of Events Scale–Revised	22	0-54	11.7	10.8	0.913
Proactive coping	Proactive Coping Inventory	55	77-165	117.2	17.1	0.925
Cumulative personal trauma	Cumulative Trauma Score–Short Form	32	2-23	9.4	4.2	0.729

TABLE 3 Characteristics of the Stressful Trauma Patient Care Events

	n	%
Violence-related		
Yes	54	39.4
No	83	60.6
Disaster-related		
Yes	4	2.9
No	133	97.1
Trauma briefing		
Yes	86	62.8
No	51	37.2
Trauma debriefing		
No debriefing offered	114	83.2
Declined debriefing	6	4.4
Debriefing immediately after trauma care	3	2.2
Debriefing later during the shift	6	4.4
Debriefing on a different day	8	5.8
Patient disposition		
Discharge to home	26	19
Admit to hospital/nonintensive care unit	12	8.8
Admit to intensive care unit	26	19
Admit to surgery	17	12.4
Transfer to another emergency department/hospital	31	22.6
Expired/transfer to morgue	25	18.2
Trauma care role		
Bedside care, no documentation	27	19.7
Documentation only	5	3.6
Bedside care and documentation	73	53.3
Other role	32	23.4
Patient resemblance		
Yes	31	22.6
No	106	77.4
Personal break after trauma care		
Yes	41	29.9
No	96	70.1

been significantly greater; especially given that all stressful situations in our study were related to the care of a trauma patient.[8] This assumption of effective proactive coping is supported by the fact that nurses in our study have a higher cumulative personal trauma score (mean = 9.4) than those in another study (mean = 7.2) where participants were often diagnosed with traumatic stress disorders. When testing their model, Goh et al[2] reported that stress would still occur after the deployment of coping strategies. This finding indicated that while the use of proactive coping strategies remains critical for nurses who provide care, the traumatic stress symptoms they experience may never be prevented completely.

Morrison and Catanzaro[21] discussed a trauma simulation exercise they conducted with 79 undergraduate nursing students. Their analysis of the exercise resulted in student accounts of being anxious, scared, confused, overwhelmed, and frustrated during the exercise. Furthermore, students reported that these reactions to stressful situations were normal for some. Morrison and Catanzaro's[21] findings provide credence to the need for an intervention focused on decreasing traumatic stress. In our study, there were 3 proactive coping strategies significantly ($P < .01$) correlated to traumatic stress. All 3 strategies were related to planning for a stressor prior to the stressor occurring. Planning for a stressor was described by Morrison and Catanzaro[21] as a simulation briefing. The vast majority (79.5%) of students in Morrison and Catanzaro's[21] study believed that the simulation briefings helped them understand and better participate in the simulations. The incorporation of briefings as a key element for the continuum of care for traumatically injured patients may be beneficial for those nurses who may also experience anxiety, fear, confusion, frustration, or being overwhelmed during the trauma resuscitation in a real work environment. Briefings were conducted for the majority (62.8%) of the sample in our study, which may account for the generally low traumatic stress scores.

The mean traumatic stress score (11.7) reported in this study was comparable with statistics reported in other studies of nurses also measuring traumatic stress with the Impact of Events Scale–Revised. Gates et al[4] studied traumatic stress in emergency nurses following an event of workplace violence. The mean traumatic

TABLE 4 Significant Correlations for Proactive Coping Items and Traumatic Stress Symptoms' Score

Proactive Coping Inventory Item	Correlation	*df*	*P*
I plan my strategies to change a situation before I act.	0.339	134	<.001
I plan strategies for what I hope will be the best possible outcome.	0.225	134	.004
Before tackling a difficult task I imagine success scenarios.	0.215	134	.006
I plan for future eventualities.	0.198	134	.011
I imagine myself solving a difficult problem before I actually have to face it.	0.190	134	.013
When there are serious misunderstandings with coworkers, family members, or friends, I practice before how I will deal with them.	0.191	134	.013
I make lists and try to focus on the most important things first.	0.0190	134	.013
I make sure my family is well taken care of to protect them from adversity in the future.	0.180	134	.018
When I have a problem with my coworkers, friends, or family, I imagine beforehand how I will deal with them successfully.	0.177	134	.019
When I experience a problem, I take the initiative in resolving it.	0.176	134	.020
Before disaster strikes, I am well-prepared for its consequences.	0.173	134	.022
In my mind I go through many different scenarios to prepare myself for different outcomes.	0.166	134	.027
I address a problem from various angles until I find the appropriate action.	0.151	134	.039
I think ahead to avoid dangerous situations.	0.150	134	.041
I develop my job skills to protect myself against unemployment.	0.148	134	.043
Before getting messed up with a problem, I'll call a friend to talk about it.	0.146	134	.045
I imagine myself solving difficult problems.	0.145	134	.046

stress score in their study was higher at 18.7. In a separate study with psychiatric nurses exposed to an inpatient suicide, nurses' mean stress score was only 11.4, slightly lower than the mean in our study sample.[22] The higher score for participants in the study by Gates et al[4] may be a result of the personal nature of the stress, specifically being the victim of workplace violence. The lower scores for the current study and those reported by Takahashi et al[22] could be accounted for by the indirect nature of the stressor, being able to stay busy at work due to the event (ie, trauma patient care, patient suicide), or learning to manage stress over time.[3] Although the mean scores for each of the 3 samples is low, these findings should not negate that some nurses did yield high traumatic stress that may have been exhibited by avoidance, hyperarousal, and intrusive thoughts. Ben-Ezra et al[7] reported that traumatic stress scores could continue to rise over time, indicating that not all nurses might be able to appropriately manage their symptoms of traumatic stress. Psychological care should be considered for all nurses regardless of their traumatic stress score. Even without symptoms of traumatic stress, nurses may be demonstrating poor ability to be safe and productive while at work. Future interventions may be best directed at the entire health care provider team that provides trauma patient care versus a single nurse, because as Laposa and Alden[6] noted, there was no significant decrease in traumatic stress whether the nurse was directly involved with a stressful situation (ie, trauma patient care) or an observer.

Marginally significant correlations (*P* value between .01 and .05) were seen for a number of proactive coping strategies. While there is the risk that a type I error occurred with these findings, the strategies should still be considered for the development of a traumatic stress intervention. The decision to include or exclude the additional proactive coping strategies should be based on focus group data from a sample of emergency nurses that provide trauma patient care. Nurses can be queried for the feasibility of a proposed study intervention. A similar strategy was used by Gates et al[23] during the planning phase for a workplace violence intervention program with emergency department workers.

Limitations

This study may be limited by selection bias. It is possible that emergency nurses suffering severe traumatic stress symptomatology chose not to participate. The significance of this limitation was minimized because a portion of the sample did experience moderate to high traumatic stress.

While the overall correlation was significant, it was still small (r = .185). The failure to yield a strong correlation may be due to the sample predominantly having mild traumatic stress. A future sample consisting exclusively of participants with severe traumatic stress may yield a strong significant correlation.

CONCLUSION

Emergency nurses providing care to traumatically injured patients demonstrated a moderate to consistent use of proactive coping strategies, while personally experiencing traumatic stress. Adopting the use of proactive coping strategies related to the planning and preparation for the arrival of the traumatically injured patient may be effective at moderating traumatic stress. Future research is needed to determine whether traumatic stress following trauma patient care can be significantly mitigated with the implementation of a multicomponent intervention composed of proactive coping strategies.

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REFERENCES

1. US Department of Health and Human Services, Health Resources and Services Administration. The registered nurse population: Findings from the 2008 National Sample Survey of Registered Nurses. http://bhpr.hrsa.gov/healthworkforce/rnsurveys/rnsurveyfinal.pdf. Published 2010. Accessed January 29, 2013.
2. Goh YW, Sawang S, Oei TPS. The revised transactional model (RTM) of occupational stress and coping: an improved process approach. *Aust N Z J Organ Psych.* 2010;3:13–20.
3. Armagan E, Engindeniz Z, Devay AO, Erdur B, Ozcakir A. Frequency of post-traumatic stress disorder among relief force workers after the tsunami in Asia: do rescuers become victims? *Prehospital Disaster Med*, 2006;21(3):168-172.
4. Gates DM, Gillespie GL, Succop P. Violence against nurses and its impact on stress and productivity. *J Nurs Econ.* 2011;29(2):59-66.
5. Gillespie GL, Gates DM, Miller M, Howard PK. Violence against healthcare workers in a pediatric emergency department. *Adv Emerg Nurs J.* 2010;32(1):68-82.
6. Laposa JM, Alden LE. Work stress and posttraumatic stress disorder in ED nurses/personnel. *J Emerg Nurs.* 2003;29:23-28.
7. Ben-Ezra M, Palgi Y, Essar N. Impact of war stress on post-traumatic stress symptoms in hospital personnel. *General Hosp Psych.* 2007;29:264-266.
8. Mealer ML, Shelton A, Berg B, Rothbaum B, Moss M. Increased prevalence of post-traumatic stress disorder symptoms in critical care nurses. *Am J Resp Crit Care Med.* 2007;175:693-697.
9. Follette VM, Polusny MM, Milbeck K. Mental health and law enforcement professionals: trauma history, psychological symptoms, and impact of providing services to child sexual abuse survivors. *Prof Psych Res Pract.* 1994;25:275-282.
10. Kira IA, Lewandowski L, Templin T, Ramaswamy V, Ozban B, Mohanesh J. Measuring cumulative trauma dose, types, and profiles using a development-based taxonomy of traumas. *Traumatology.* 2008;14(2):62-87.
11. Marmar CR, Weiss DS, Metzler TJ, Delucchi K. Characteristics of emergency services personnel related to peritraumatic dissociation during critical incident exposure. *Am J Psych.* 1996;153:94-102.
12. Moran C, Britton NR. Emergency work experience and reactions to traumatic incidents. *J Trauma Stress.* 1994;7:575-585.
13. Simon CE, Pryce JG, Roff LL, Klemmack D. Secondary traumatic stress and oncology social work: protecting compassion from fatigue and compromising the worker's worldview. *J Psychosocial Oncol.* 2005;23:1-14.
14. Robinson JR, Clements K, Land C. Workplace stress among psychiatric nurses: prevalence, distribution, correlates, & predictors. *J Psychosocial Nurs.* 2003;41(4):33-41.
15. Gates DM, Ross CS, McQueen L. Violence against emergency department workers. *J Emerg Med.* 2006;31:331-337.
16. Faul F, Erdfelder E, Lang A, Buchner A. G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav Res Methods.* 2007;39:175-191.
17. Weiss DS. The Impact of Event Scale–Revised. In: Wilson JP, Keane TM, eds. *Assessing Psychological Trauma and PTSD.* 2nd ed. New York: Guilford Press; 2004:168-189.
18. Weiss DS, Marmar CR, Metzler TJ, Ronfeldt HM. Predicting symptomatic distress in emergency services personnel. *J Consult Clin Psych.* 1995;63:361-368.
19. Greenglass E, Schwarzer R, Jakubiec D, Fiksenbaum L, Taubert S. The Proactive Coping Inventory (PCI): a multidimensional research instrument. http://userpage.fu-berlin.de/health/poland.htm. Published 1999. Accessed January 29, 2013.
20. Buurman BM, Mank APM, Beijer HJM, Olff M. Coping with serious events at work: a study of traumatic stress among nurses. *J Am Psych Nurs Assoc.* 2011;17:321-329.
21. Morrison AM, Catanzaro AM. High-fidelity simulation and emergency preparedness. *Publ Health Nurs.* 2010;27(2):164-173.
22. Takahashi C, Chida F, Nakamura H, et al. The impact of inpatient suicide on psychiatric nurses and their need for support. *BMC Psych.* 2011;11:38. http://www.biomedcentral.com/1471-244X/11/38. Accessed January 29, 2013.
23. Gates D, Gillespie G, Smith C, Rode J, Kowalenko T, Smith B. Using action research to plan a violence prevention program for emergency departments. *J Emerg Nurs.* 2011;37(1):32-39.