Group Cohesion and Organizational Commitment: Protective Factors for Nurse Residents' Job Satisfaction, Compassion Fatigue, Compassion Satisfaction, and Burnout

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Stress can have detrimental effects on nurse residents' levels of job satisfaction, compassion, fatigue, and burnout. This can lead to high turnover rates and poor quality of care among novice nurses. Therefore, it is critical to identify protective factors to prevent the onset of negative nurse outcomes (compassion fatigue, burnout, and job dissatisfaction) and to promote positive nurse outcomes (job satisfaction, compassion satisfaction). This study aimed to determine whether factors such as group cohesion and organizational commitment would be protective and moderate the association between stress exposure and posttraumatic stress symptoms and other negative nurse outcomes, thus facilitating positive outcomes. Findings showed that group cohesion was effective in moderating the negative effects of current stress exposure and posttraumatic stress symptoms on negative nurse outcomes, specifically on increased compassion fatigue and burnout, and reduced compassion satisfaction. In addition, organizational commitment was determined to promote positive nurse outcomes such as job satisfaction and compassion satisfaction. The study findings are promising, as retention of quality nurses is a significant problem for hospitals. Nurse managers and hospital administrators should be aware of the benefits of group cohesion and organizational commitment and strive to make the promotion of these factors a priority. (Index words: Nurses; Stress; Posttraumatic stress; Burnout; Fatigue; Satisfaction) J Prof Nurs 30:89–99, 2014.

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NURSES ARE FREQUENTLY exposed to highly stressful and emotional on-the-job situations, such as the severe illness or death of a patient. In addition, nurses often struggle to provide quality patient care in the face of an overwhelming workload (Emery, 1993). In critical care environments, the high turnover rate of the staff is generally attributed to stress and prevalence of high level of burnout (Oehler & Davidson, 1992). In addition, stress levels are inversely related to job satisfaction among nurses (McGowan, 2001), and nurses with the intention to leave have been found to report less satisfaction with their jobs than those who did not intend to leave (DiMattio, Roe-Prior, & Carpenter, 2010). Overall, the constant exposure to stressful

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experiences and the high demands of a nursing job often make it difficult for hospitals to recruit and retain an experienced nursing staff. This pattern is particularly true for novice nurses, as job stress among nurses is inversely related to age, years as a nurse, and years in an organization (Ernst, Messmer, Franco, & Gonzalez, 2004). Likewise, among pediatric oncology nurses, newly hired nurses show fewer adaptive coping reactions than experienced nurses and frequently respond to stressful situations with resignation (Hinds et al., 1994).

Nurses are confronted with daily stress, which places them at risk for experiencing compassion fatigue (CF), also known as secondary traumatic stress disorder (STSD). This describes the psychological effects of experiencing a trauma vicariously through the interaction with a traumatized person (Gates & Gillespie, 2008). Similar to posttraumatic stress disorder (PTSD), CF/STSD can be characterized by symptoms of reexperiencing, avoidance, and physiological arousal caused by the traumatic event. A variety of negative cognitive, emotional, physical, and behavioral symptoms such as anxiety, difficulty concentrating, nausea, and sleep problems can also be characteristic of CF/STSD. Among nurses, secondary traumatic stress is a common problem in a variety of settings. A study of emergency room nurses found that 85% reported at least one symptom of CF/STSD. In addition, 33% of the emergency nurses met all the criteria for CF/STSD, whereas only 15% met none (Dominguez-Gomez & Rutledge, 2009). A separate study of emergency nurses found that nearly 86% had moderate to high levels of CF/STSD (Hooper, Craig, Janvrin, Wetsel, & Reimels, 2010). Overall, a systematic review of seven studies examining CF/STSD in nurses found that CF/STSD was reported in all the studies, which included a span of forensic, emergency department, oncology, pediatric, and hospice nurses (Beck, 2011). It is important to note that a preexisting trauma history and the use of maladaptive coping styles have been identified as risk factors for developing CF/STSD (Figley, 1995). Therefore, although the majority of existing research on stress in nurses focuses only on stress acquired while on the job, future research on nurses should extend its scope to explore how preexisting trauma history impacts the onset of CF/STSD.

Nurses are also at risk for burnout, which is defined as the process in which workers' behaviors and attitudes about their work become negative in response to job strain (Leiter, Harvie, & Frizzel, 1998). Common feelings associated with burnout include frustration, powerlessness, and inability to meet work goals (Valent, 2002). Numerous studies have linked CF/STSD to burnout, particularly in nurses and nursing students (Braithwaite, 2008). In addition, burnout is strongly related to job dissatisfaction (Messmer, Bragg, & Williams, 2011; Piko, 2006) and has been found to be related to intention to resign (Ohue, Moriyama, & Nakaya, 2011), as well as depressive mood (Rudman & Gustavsson, 2011). A study of nurses in Shanghai found that the nurses, particularly those in large hospital settings, suffered from high levels of burnout, which was strongly associated with work-related stress (Xie, Wang, & Chen, 2011). Hooper et al. (2010) found that in their study of emergency nurses, 82% had moderate to high levels of burnout.

Overall, the constant exposure to stress and potentially traumatic experiences inherent in the nursing profession has been consistently shown to contribute to the onset of negative nursing outcomes such as reduced job satisfaction, CF/STSD, and burnout. This is very concerning given reports of high turnover rates in nurses (Halfer & Graf, 2006), especially at a time when a large cohort of nurses is approaching retirement (Laschinger, 2012). Many have expressed concerns that new nurses will leave the profession because of the negative working conditions (Scott, Keehner Engelke, & Swanson, 2008), which is a serious concern because the cost of replacing a new graduate nurse is high, both in terms of financial and organizational productivity (Lindsey & Kleiner, 2005). Turnover not only impacts that individual but also negatively impacts the remaining nursing staff. A study by Bae, Mark, and Fried (2010) determined that nursing units with moderate levels of turnover were likely to have lower levels of work group learning, defined as the ability to learn individually and then share personal learning experiences with others, compared with those without turnover. Therefore, it is vital to determine ways to protect new nurses from these negative consequences and instead promote positive outcomes to recruit and retain effective nursing staff.

Despite nurses' exposure to stressful work scenarios, nurses may find deep satisfaction and genuine appreciation working with patients who are in need of assistance. This is known as compassion satisfaction or an individual's satisfaction with his or her role as a professional caregiver (Stamm, 2002). Compassion satisfaction has been identified as an important factor in predicting nurse caring (Burtson & Stichler, 2010). Through previous qualitative studies, compassion satisfaction has been identified as being a strong predictor of patient satisfaction (Larrabee et al., 2004) and is a motivational factor that impacts recruitment and retention (Graber & Mitcham, 2004).

Organizational commitment and group cohesion may be important protective factors to target in order to promote positive nursing outcomes and prevent burnout and CF/STSD. Recent studies have found that organizational climate and organizational commitment are negatively related to intention to leave (Liou & Cheng, 2010), as well as positively related to intention to stay (Kim & Hwang, 2011). Fang (2001) found that organizational commitment was an even stronger predictor of turnover intention than job satisfaction (Fang, 2001). Organizational commitment has also been found to be correlated with job satisfaction, specifically in nursing (Ulrich, Krozek, Early, Africa, & Carman, 2010). Research has also determined that work group cohesion is beneficial to nurses both in terms of their job performance and satisfaction with their organization. Work group cohesion was found to have

positive impacts on patient satisfaction, and work group learning was found to reduce the number of occurrences of severe medication errors (Bae et al., 2010). Work group cohesion was also found to be an important predictor of job satisfaction in nurses (Kovner, Brewer, Ying, & Djukic, 2007; Larrabee et al., 2010) and of nurses' intention to remain in their job (Tourangeau & Cranley, 2006). In addition, a study by McDonald, Tullai-McGuinness, Madigan, and Shively (2010) found that nurses involved in power-sharing activities, activities promoting an environment of working in mutual partnership, such as mentoring, valuing staff contributions, information sharing, and reducing staff nurse stress of leader presence, demonstrated greater commitment to their organization and had greater job satisfaction (McDonald et al., 2010). Therefore, creating a cohesive working environment is another critical factor to promote job satisfaction and intention to stay.

While these studies have begun to explore the intricate relations between organizational commitment and group cohesion on nurse outcomes, further investigations should be conducted to determine how these factors directly relate to nurses' levels of job satisfaction, burnout, compassion satisfaction, and CF/STSD. As previous literature has determined that stress has negative impacts on nurse outcomes such as influences on reductions in job satisfaction, increased burnout, and increased CF/STSD, it is important to determine ways to prevent the onset of these negative outcomes. No studies to date have examined whether these factors can directly protect nurses from stress and the onset of negative outcomes while promoting positive nurse outcomes.

Theoretical Framework

On the basis of the literature showing the connections between organizational commitment and group cohesion with a number of positive nursing outcomes, this study investigates the relations between nurse residents' perceptions of their levels of group cohesion and organizational commitment and their levels of job satisfaction, burnout, CF/STSD, and compassion satisfaction. Specifically, this study aims to determine if group cohesion and organizational commitment can serve as protective factors against the negative effect of preexisting stress exposure and PTSD symptoms (stress exposure and PTSD symptoms experienced prior to starting their work as a nurse) and current stress exposure and PTSD symptoms (stress exposure and PTSD symptoms experienced during the first 3 months of beside experience) on negative nurse outcomes (i.e., job dissatisfaction, burnout, and compassion satisfaction). Further, the study seeks to determine if group cohesion and organizational commitment also promote positive nurse outcomes (i.e., compassion satisfaction and job satisfaction). It was hypothesized that both organizational commitment and group cohesion would serve as protective factors and would mitigate the onset of negative nurse outcomes while promoting positive nurse outcomes (see Figure 1 for a graphical representation of the theoretical model). Ultimately, the results from this study may assist in the development of programs that address the psychological well-being and retention of new nurses entering the work force.

Methods

Participants

All nurses entering the Versant RN Residency Program at Children's Hospital Los Angeles were approached for participation in this study. Children's Hospital Los Angeles is a large, urban pediatric hospital that serves a diverse community. The Versant RN Residency Program at Children's Hospital Los Angeles is a 22-week program that provides new nursing school graduates, who are licensed and have less than 1 year of previous nursing experience, with a comprehensive clinical and learning experience to prepare them for work in an acute care environment. The program includes pediatric-specific didactics, skills labs, and clinical experiences with a preceptor, a mentoring component that focuses on professional development, and a debriefing program that supports the new nurse during this major transition.

A convenience sample of 251 participants (231 female, 20 male) from a possible 261 nurses (96% participation) across six entering classes (two classes per year, on average 44 nurse residents per class) were recruited from September 2007 through March 2010. Seventy-six participants (30.3%) were Caucasian/White, 48 (19.1%) were Asian, 26 (10.4%) were Latino, 6 (2.4%) were Black/African American, 2 (0.8%) were more than one race, 1 was Native Hawaiian or other Pacific Islander, 1 declined to state their ethnicity, and 90 (35.9%) did not answer this question. No participants expressly stated a desire to drop out of the study; however, 19 participants had missing data at Time 2 due to absence during data

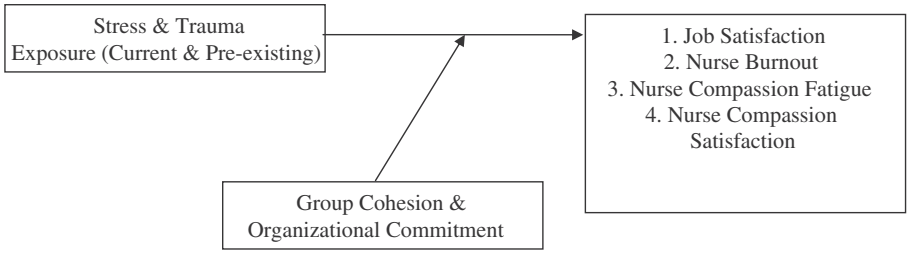

Figure 1. Theoretical model.

collection or resignation from the program. In total, four residents did not graduate from the program, one resigned due to other commitments, two due to relocations, and one due to desiring work in a less acute medical setting.

Procedure

Nurse residents were approached for participation in the study during the first month of their nurse residency program (T1). They were approached for the study during one of their orientation days in a classroom setting. During this time, they were given a short presentation by the principal investigator and a research assistant regarding the study. They were assured that participation in the study was entirely voluntary and would not impact their training if they decided to decline to participate. Informed consent was obtained from all participants. After consenting to the study, nurse residents were asked to complete self-report pencil-and-paper questionnaires, which took approximately 15–20 minutes. Nurse residents were allowed to decline participation if they did not wish to participate. The Life Events Checklist (LEC), a well-validated measure, was administered to determine previous exposure to stressful and potentially traumatic life events (Gray, Litz, Hsu, & Lombardo, 2004). If the nurse resident reported experiencing one or more stressful life events, they were then instructed to complete the PTSD Checklist Civilian Version (PCL-C) focusing on PTSD symptoms they had experienced over the previous month with regard to the stressful event that had the greatest impact on them (Weathers, Litz, Huska, & Keane, 1991; Ruggiero, Del Ben, Scotti, & Rabalais, 2003). If they had not experienced any stressful life events, they were instructed to not complete the PCL-C.

Following 3 months of bedside experience (T2), nurse residents were asked to repeat the LEC and PCL-C measures to determine their exposure to stressful events and to determine the presence of PTSD symptoms during their initial 3 months of bedside nursing. In addition, nurse residents were asked to complete the Compassion Satisfaction and Fatigue Test (CSF), a well-validated measure to determine their levels of compassion satisfaction, CF/secondary traumatic stress symptoms (STS), and burnout after completing the first 3 months of bedside experience. For clarity, the current study will refer to CF and STSD symptoms as CF/STS. These surveys were again administered in the classroom setting. As part of the residency program, nurses are periodically brought back into the classroom to learn additional skills and to watch demonstrations about various topics such as palliative care, end-of-life care, and spiritual care. The residents were approached to complete Time 2 data on a day they are scheduled to return to the classroom for continuing education and additional training. These measures took approximately 15–30 minutes to complete.

Information regarding nurses' job satisfaction, organizational commitment, and group cohesion was gathered by a data management program, Versant Voyager, which administers surveys on a variety of nursing outcomes. As part of the Versant Voyager's battery of measures, nurse residents completed self-report measures regarding demographics, their level of organizational commitment, group cohesion with their clinical unit during bedside experience, and job satisfaction 6 months after the start of nurse residency (T3). These measures took roughly 15–20 minutes to complete.

The hospital institutional review board approved all study procedures in accordance with requirements established by the U.S. Department of Health and Human Services.

Measures

Stress exposure: The LEC (Gray et al., 2004) is a 17-item questionnaire assessing exposure to stressful and potentially traumatizing life events. The questionnaire lists a variety of potentially traumatic events, such as natural disaster, assault, and death of a loved one (Gray et al., 2004). Participants were asked to rate the level of exposure they have had to each event on a 5-point Likert scale (1 = *happened to me*, 2 = *witnessed it*, 3 = *learned about it*, 4 = *not sure*, 5 = *does not apply*). The checklist shows good reliability ($\kappa > .50$) and test–retest reliability ($r = .82$). Further, it has been found to correlate highly with other trauma exposure measures and predict PTSD symptoms in a clinical sample (Gray et al., 2004). An LEC sum at T1 was used to determine preexisting stress exposure (exposure to stressful life events prior to starting nurse residency/lifetime history of stressful life events), and an LEC sum at T2 was used to determine current stress exposure (exposure to stressful life events during the first 3 months of bedside experience). Current stress exposure included any stressful life events experienced during the first 3 months of bedside experience, both on the job and outside of work. LEC sums were determined by adding the total number of stressful life events that they experienced either that directly happened to them, that they witnessed, or that they learned about happening to someone close to them.

Posttraumatic stress disorder/symptoms: The PCL-C is a 17-item questionnaire assessing PTSD symptomatology (Weathers et al., 1991); PTSD is diagnosed when an individual provides a symptomatic response to at least one "B" (reexperiencing) item, at least three "C" (avoidance/numbing) items, and at least two "D" (hyperarousal) items. Individuals are diagnosed with partial PTSD when they meet requirements for at least two types of items. Symptoms rated as "moderately" or above (responses 3 through 5) are counted as present. A severity score is determined by totaling all items (range = 17–85). The checklist has a point-by-point correspondence with individual items in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*. Lifetime PTSD/symptoms (T1): PCL-C sums (PTSD severity) at T1 were used to determine PTSD/symptoms

based on the nurses' worst self-selected stressful lifetime event experienced. PCL-C sums at T2 were used to determine current trauma PTSD/symptoms experienced within the first 3 months of bedside nursing. The checklist shows good internal consistency (α = .94) and test–retest reliability (r = .88).

Compassion satisfaction, CF, and burnout: The CSF (Stamm, 2002) is a 66-item self-report questionnaire measuring individuals' levels of compassion satisfaction, CF/STS, and burnout in their role as a helper (Stamm, 2002). Compassion satisfaction is the pleasure felt from being able to do well in the work of helping others. Burnout is composed of the feelings of exhaustion, frustration, anger, and depression coming from one's general work. CF/STS is composed of negative feelings associated with working specifically in caregiving environments where one is constantly exposed to extremely stressful events. Participants were asked to rate the extent to which each item applies to them (0 = *never*, 1 = *rarely*, 2 = *a few times*, 3 = *somewhat often*, 4 = *often*, 5 = *very often*). The test produces three subscales: compassion satisfaction, burnout, and CF/STS. Each scale shows good internal consistency in our sample (α = .87, .90, and .87 respectively).

Job satisfaction: The Nurse Job Satisfaction Scale (Mueller & McCloskey, 1990) is a 23-item scale that was used to determine nurse residents' overall level of job satisfaction. The scale included items specific to job satisfaction of nursing practice such as enjoyment, quality of work, and time to work (Mueller & McCloskey, 1990). Participants are asked to rate how much they agree with a series of statements (1 = *strongly agree*, 2 = *agree*, 3 = *undecided*, 4 = *disagree*, 5 = *strongly disagree*). The survey shows good internal consistency in our sample (α = .90). This scale has been found to correlate with other job satisfaction scales (e.g., Job Diagnostic Survey; Mueller & McCloskey, 1990; Tourangeau, McGillis Hall, Doran, & Petch, 2006). An overall summary score was used to determine nurse residents' level of job satisfaction.

Group cohesion: The Group Cohesion Scale (Byrne & Nelson, 1965) is a six-item measure that reflects the extent to which interpersonal relations between the nurses function well to promote productivity, efficiency, morale, belongingness, positive personal feelings about the group, and enjoyment of working together (Good & Nelson, 1971). Responses are measured on a 7-point scale with poles at 1 (*strongly disagree*) and 7 (*strongly agree*). A total score is calculated through direct summation of the responses to items one through six. The scale shows good internal consistency (α = .89).

Organizational commitment: The Organizational Commitment Scale (Porter, Steers, Mowday, & Boulian, 1974) is a 15-item measure used to determine the relative strength of an individual's identification with and involvement in an organization (Mowday, Steers, & Porter, 1979). Organizational commitment is characterized by (a) a strong belief in and acceptance of the organization's goals and values, (b) a willingness to exert considerable effort on behalf of the organization, and (c) a strong desire to maintain membership in the organization. Responses are measured on a 7-point scale with poles at 1 (*strongly disagree*) and 7 (*strongly agree*). A total score is calculated through direct summation of responses to Items 1 through 11. The survey shows good internal consistency (α = .89).

Data Analysis

All data collected by surveys at T1 and T2 were hand entered into a database in a password-protected computer by research assistants. Data were double entered and checked for consistency, accuracy, and reliability. Data collected by Versant Voyager were collected electronically. A negligible amount of data was missing at T1, and 19 individuals did not provide data at T2. A negligible amount of data was missing in the Versant Voyager database at T3. Further, missing data were cleaned such that respondents who completed less than 50% of a tool (e.g., respond to 4 of 10 items) had no data exported (missing case). Those who completed more than 50% but less than 100% of items (e.g., 7 or 10) had the missing values replaced with the median value for the completed items (e.g., a "3" on a 1–5 scale).

Descriptive statistical tests were used to determine rates of stress exposure and PTSD symptoms in the sample. A series of stepwise linear regression analyses were performed in SAS Statistical Software to determine whether stress exposure and PTSD symptoms predicted nurse outcomes. Standard inclusion and exclusion criteria were used for these models (inclusion required observed $P < 0.05$, exclusion required observed $P > 0.1$). In total, four regression models were built to predict (a) job satisfaction, (b) burnout, (c) compassion satisfaction, and (d) CF/STS. Independent variables included in the overall model included preexisting stress exposure, current stress exposure, preexisting PTSD symptoms, current PTSD symptoms, organizational commitment, and group cohesion. Independent variables were entered into regression models in stepwise blocks so that factors identified in the literature as likely contributors to the outcomes variables were entered first, followed by singleton independent variables, followed finally by interaction effects between independent variables. Organizational commitment scores and group cohesion scores (interaction terms with stress/PTSD measures) were entered into a second set of models as potential moderators to see if these variables changed the association between stress/PTSD and nurse outcomes. Preexisting and current stress exposure and PTSD symptoms were included in the model together to control for overlapping variance.

Results

Preexisting Stress Exposure and PTSD

Prior to starting nurse residency, most nursing residents in the program experienced traumatic and stressful life events (Table 1). Nearly all nurse residents (98.8%) directly experienced, witnessed, or learned about a stressful event. Eighty-nine percent experienced a stressful event directly happening to them, 83.1% witnessed a

Table 1. Preexisting and Current Stress and Trauma

	Preexisting (T1), %	Current (T2), %
Overall stressful event exposure	98.8	89.2
Direct stressful event exposure	89	65.8
Witnessed stressful event	83.1	60.6
Learned about stressful event	86.3	66.7
Full PTSD	5.6	7.3
Partial PTSD	12.4	11.2

traumatic event, and 86.3% learned about a traumatic event happening to someone close to them. An alarmingly high number of nurses reported exposure to particularly traumatizing events. For instance, 23.6% directly experienced a physical assault, 12.1% directly experienced a sexual assault, and 24% experienced an unwanted or uncomfortable sexual experience. Furthermore, 19.1% witnessed a physical assault, 42.3% witnessed a life-threatening illness or injury, 28.5% witnessed severe human suffering, 10.1% witnessed a sudden, violent death, and 36.8% witnessed a sudden, unexpected death of someone close to them. Finally, 26.8% learned about a physical assault, 31.9% learned about an assault with a weapon, 33.5% learned about a sexual assault, and 19.9% learned about an unwanted sexual experience happening to someone close to them. Prior to starting the nurse residency program, 5.6% met criterion for full PTSD and 12.4% met criterion for partial PTSD.

Current Stress Exposure and PTSD

Most nurse residents continued to encounter traumatic and stressful life events upon entering nurse residency (Table 1). During the first 3 months of bedside experience, 89.2% of nurse residents directly experienced, witnessed, or learned about a stressful event. Of these residents, 65.8% experienced an event directly happening to them, 60.6% witnessed a stressful event, and 66.7% learned about a stressful event happening to someone close to them. During this time, a large percentage of nurses witnessed a number of particularly traumatizing life events such as a life-threatening illness or injury (34.5%), severe human suffering (26.75%), and unexpected death (13.4%). After the first 3 months of bedside experience, 7.3% of nurse residents met diagnostic criteria for PTSD, and 11.2% met diagnostic criteria for partial PTSD.

Association Between Stress Exposure and PTSD Symptoms With Nurse Outcomes

As stepwise linear regression was used, only statistically significant predictors remained in the model. The first regression model predicting job satisfaction (Model 1) showed that organizational commitment explained a small, but significant amount of variance (5%) in job satisfaction, $R^2 = 0.05$, $F(1,249) = 13.83$, $P < .001$. Therefore, having higher organizational commitment may increase job satisfaction. The second model predicting burnout (Model 2) showed that nurses' current PTSD symptoms accounted for 19% of the variance in burnout rate, $R^2 = 0.19$, $F(1,167) = 42.579$, $P < .001$, which indicates that higher levels of current PTSD symptoms may increase the likelihood of burnout. The third model predicting compassion satisfaction (Model 3) found that nurses' current PTSD symptoms and the interaction between organizational commitment and group cohesion accounted for 18% of the variance in compassion satisfaction scores, $R^2 = 0.18$, $F(1, 249) = 19.03$, $P < .001$. Therefore, current PTSD symptoms, along with the interaction between the connectedness to one's working group and its positive affiliation with the workplace environment, may explain the degree of compassion satisfaction that nurses experience. The fourth regression analysis predicting CF/STS (Model 4) found that current stress exposure and preexisting and current PTSD symptoms explained a large percentage (49%) of variance in CF scores, $R^2 = 0.49$, $F(3,174) = 53.73$, $P < .001$. This suggests that preexisting PTSD symptomatology as well as current PTSD symptoms and current stress exposure play a large role in determining the extent to which nurses experience CF (see Table 2 for all descriptive statistics and Table 3 for results of the regression analyses).

Table 2. Descriptive Statistics for All Study Measures

	n	*M*	Range	*SD*
Preexisting trauma exposure (T1)	249	8.79	0–17	4.12
Current trauma exposure (T2)	231	5.61	0–17	4.85
Preexisting PTSD symptoms (T1)	249	27.66	17–68	9.51
Current PTSD symptoms (T2)	205	27.69	12–68	10.17
Compassion satisfaction (T2)	232	93.56	27–125	16.77
Burnout sum (T2)	231	24.01	3–62	11.67
CF (T2)	232	23.56	2–70	13.29
Group cohesion (T3)	220	34.29	14–42	4.98
Organizational commitment score (T3)	245	63.93	21–77	8.54
Nurse satisfaction score (T3)	216	68.69	38–90	10.05

Table 3. Relationships Between Stress, Trauma, and Protective Factors With Nurse Outcomes

	R^2	*F*	*P*
Model 1	0.05	13.83	.001
Model 2	0.19	42.579	.001
Model 3	0.18	19.03	.001
Model 4	0.49	53.73	.001
Model 5	0.22	46.92	.001
Model 6	0.16	16.678	.001
Model 7	0.42	61.748	.001

Group Cohesion and Organizational Commitment as Protective Factors

The preliminary regression analysis determined that stress exposure and PTSD symptoms as well as group cohesion and organizational commitment scores differentially accounted for a significant amount of the variance in the four nurse outcomes of interest. To determine whether group cohesion and/or organizational commitment moderated the effects of stress exposure and PTSD symptoms on nurse outcomes, a second series of regression analyses were conducted to explore the interaction between these variables with stress and PTSD scores on the outcome variables. Organizational commitment and group cohesion were considered moderators if their interaction terms explained a significant amount of the variance in predicting nurse outcomes.

Burnout

The regression model predicting burnout (Model 5) found that the interaction between current PTSD symptoms and group cohesion accounted for 22% of the variance in burnout reports, $R^2 = 0.22$, $F(1,172) = 46.920$, $P < .001$. Therefore, the relations between current PTSD symptoms and burnout were mitigated such that current trauma was less likely to be related to burnout when group cohesion was high. This indicates that group cohesion can potentially protect nurse residents from the onset of burnout due to experiencing PTSD symptoms.

Compassion Satisfaction

The regression model predicting compassion satisfaction (Model 6) found that the interaction between group cohesion and current PTSD symptoms and the interaction between group cohesion and current stress exposure together accounted for 16% of the variance in compassion satisfaction scores, $R^2 = 0.16$, $F(2,172) = 16.678$, $P < .001$. Therefore, group cohesion moderated the effect of current stress exposure and PTSD symptoms on compassion satisfaction such that current stress and PTSD symptomatology were less likely to reduce compassion satisfaction when group cohesion was high. This indicates that although PTSD symptoms and stress exposure typically relate to reduced compassion satisfaction, group cohesion may serve as a protective factor to buffer against this negative outcome.

Compassion Fatigue/Secondary Traumatic Stress Disorder

The final regression model predicting CF (Model 7) showed that the interaction between group cohesion and current PTSD symptoms and the interaction between group cohesion and current stress together accounted for 42% of the variance in CF/STS, $R^2 = 0.42$, $F(2,172) = 61.748$, $P < .001$. Therefore, the effects of current stress and current PTSD symptomatology on compassion satisfaction were moderated such that current stress and PTSD were less likely to reduce compassion satisfaction when group cohesion was high. Group cohesion again served as a protective factor to buffer against the negative effects of stress exposure and PTSD symptoms (for a summary of regression results, refer to Table 3; see Figure 2 for a graphic representation of significant interactions).

Discussion

The purpose of this study was to examine nurse residents' perceptions of group cohesion and organizational commitment, and their relations with job satisfaction, burnout, CF/STS, and compassion satisfaction. In addition, the study aimed to determine whether group cohesion and organizational commitment would moderate the relations between stress and PTSD symptoms and negative nurse outcomes. Group cohesion was found to be an effective protective factor in reducing the effects of current stress and PTSD symptomatology on burnout, CF/STS, and reduced compassion satisfaction. As group cohesion scores increased, the strength of the relations between stress exposure, PTSD symptoms, and negative outcomes decreased. Although organizational commitment was not found to protect nurse residents from negative nurse outcomes, it did play an important role in promoting job satisfaction. Furthermore, the relations between organizational commitment and group cohesion were significant predictors of compassion satisfaction. Therefore, it seems that organizational commitment, unlike group cohesion, may be related to the maintenance of positive outcomes rather than the prevention of negative nursing outcomes.

Consistent with previous findings (Beck, 2011), this study's sample reported a high rate of direct trauma occurrence (7.3% of nurse residents met diagnostic criteria for PTSD, and 11.2% met diagnostic criteria for partial PTSD) and indirect trauma occurrence (60.6% witnessed a stressful event, and 66.7% learned about a stressful event occurring to someone close to them while on the job). Results also revealed that exposure to stressful events at the bedside was predictive of burnout and that current stress and current and preexisting PTSD symptoms were predictive of CF/STS. Overall, the results confirmed previous findings that stress exposure and PTSD symptoms have serious implications for a range of affective outcomes for new resident nurses. An important contribution to previous studies is the finding that preexisting stress exposure and PTSD symptoms may

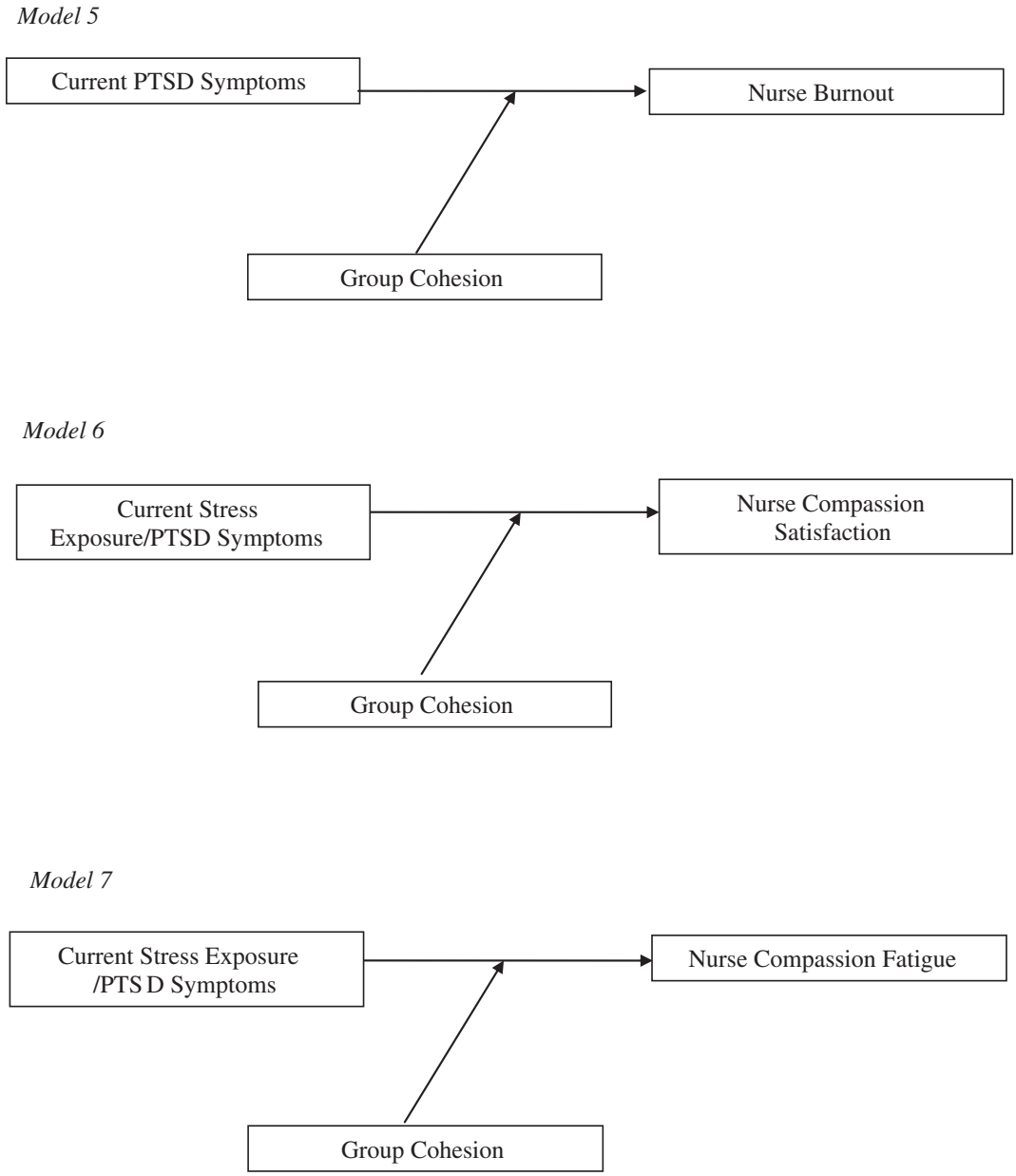

Figure 2. Group cohesion as a moderator of the effects of current stress and PTSD symptoms on nurse outcomes.

additionally predict CF/STS in nurses. No previous studies have looked at the impact of preexisting/lifetime history of stress and current PTSD symptoms on pediatric nurse outcomes.

Although group cohesion was not found to significantly predict job satisfaction in nurses as seen in recent nurse studies (Kovner et al., 2007; Larrabee et al., 2010), this could be due to the lack of variance in job satisfaction in the study sample. Instead, this study provided information about the relations between group cohesion and negative nurse outcomes in establishing that group cohesion serves as a protective factor in moderating and preventing negative nurse outcomes, particularly increased CF/STS, burnout, and reduced compassion satisfaction. On the other hand, organizational commitment was not found to be a significant protective factor against negative nurse outcomes, but was consistent with past studies in significantly predicting nurses' job satisfaction (Fang, 2001; Ulrich et al., 2010) and compassion satisfaction (Graber & Mitcham, 2004). Thus, this study's findings uniquely extend the literature in pediatric nurse outcomes in finding that group cohesion may play a larger role as a protective factor from negative outcomes, whereas organizational commitment may function distinctly to promote positive nurse outcomes.

One limitation of this study includes the misalignment of the T2 and the collection of identified outcomes from the Versant Voyager database (T3). The time frame of data collection at Children's Hospital Los Angeles (3 months) and Versant (6 months) did not match, resulting in later data collection of group cohesion and organizational commitment scores. Therefore, the data presented cannot speak to the temporal sequence of group cohesion

and organizational commitment occurring prior to nursing outcomes (PTSD symptoms, compassion satisfaction, and fatigue). However, we do believe that the organizational commitment and group cohesion scores should be representative of their scores at 3 months as they continued to work in the same group and at the same organization within that time frame. Future studies should collect both cross-sectional and longitudinal data regarding organizational commitment and group cohesion to learn more about the temporal sequence of their associations with nursing outcomes.

In addition, as the study focused on a very specific group of new pediatric nurses at Children's Hospital Los Angeles, the data collected clearly have specific limitations with regard to generalizability to other institutions, nonpediatric nurse populations, and veteran nurses. Therefore, the results of this study need to be interpreted cautiously when applied to experienced nonpediatric nurses. Nonetheless, the findings are significant for new pediatric nurses and have implications for nurse retention and programs aimed at decreasing negative outcomes (i.e., fatigue and burnout). Future studies should consider selecting a combination of adult and pediatric nurses across a diversity of years of experience.

A range of other variables could account for the differences we observed. For instance, demographic factors such as age, gender, race/ethnicity, and socioeconomic status could account for the differential impacts of stress and PTSD symptoms on nursing outcomes. Within the study sample, it was not advantageous to control for age and gender in the analyses because the sample was biased in favor of females and within the age range of 23–30 years. Further, although ethnicity data were collected, there is nothing in the literature to suggest differential effects of PTSD for health care providers from different ethnic groups. Future studies including less skewed samples can be used to determine the impact of a variety of demographic variables.

In addition, personality characteristics such as hardiness, a personality style consisting of commitment, control and challenge, encourages human survival and the enrichment of life through development, could also account for the differences observed. Previous studies find that hardiness is negatively related to burnout in critical care nurses (Boyle, Grap, Younger, & Thornby, 1991). A study of Croatian nurses also found that interactions between the Big 5 personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness) and contextual variables (i.e., organizational stress, role conflict) could be important predictors of burnout (Hudek-Knezevic, Kalebic Maglica, & Krapic, 2011). Personal dispositional factors of core self-evaluation (self-esteem, self-efficacy, locus of control, and emotional stability) were related to job satisfaction and turnover intention in new graduate nurses (Laschinger, Grau, Finegan, & Wilk, 2010). Finally, a host of other variables presented in the nurse satisfaction literature also could explain these differences such as mentoring quality, psychological empowerment, salary, and tenure status, as these were found to be related to job satisfaction (Chung & Kowalski, 2012). Additional factors such as career aspirations and access to outside social supports (religious figures, counselors, and friends) could also impact nurse response to stress. Future studies should determine the impact that various nurse variables may have on the ways nurses respond to stress and PTSD symptoms.

Despite these limitations, the findings from the study provide critical information regarding protective factors in new pediatric nurses, such as organizational commitment and group cohesion, for mitigating the harmful consequences of stress and PTSD symptoms. The results of the study not only support previous studies indicating the benefits of group cohesion and organizational commitment but also show the potential for group cohesion to actually moderate the detrimental relations between stress and PTSD symptoms and negative nursing outcomes. Nurses, hospital administrators, educators, nurse managers, employers, and policy makers should be aware of the negative impact of preexisting stress and trauma in combination with on-the-job stress exposure on vital nurse outcomes. Equally important, is beginning to understand the robust impact of promoting group cohesion and organizational commitment for mitigating the negative effects of these factors on important nurse outcomes. Future programming efforts should incorporate strategies to assist new nurses to cope with on-the-job stress, such as turning to others in their team (i.e., enhancing group cohesion). Nursing programs and hospital-based training curriculum should be aware of the benefits and try to promote both organizational commitment and group cohesion. For instance, at the study site, organizational commitment and group cohesion may have been enhanced through the availability of this robust RN residency program, which offers continued training and education, as well as mentoring and debriefing. In addition, the study results may inform the development of future interventions and curriculum, which should focus on promoting protective factors, such as group cohesion, organizational commitment, and adaptive coping skills for managing job and personal stress. Ultimately, the promotion of group cohesion and organizational commitment by the combined efforts of educators, administrators, policy makers, and nurses themselves could be a critical step toward improving job retention, positive nurse outcomes, and ultimately increased quality of patient and family care.

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