

JUST GRIN AND BEAR IT? PROACTIVE COPING AND PTSD IN NURSING
STUDENTS

by

Raquel Borges-Garcia

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SUPERVISORY COMMITTEE:

Dr. Laura Vernon

Dr. Meredith Blue

Dean, Wilkes Honors College

Date

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ABSTRACT

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Past research has found that among traumatized undergraduate women, proactive coping style was independently negatively associated with posttraumatic stress disorder symptom severity. It also shows that nurses experience many work-related traumas. The present study tests the PTSD symptom level in nursing students and measured whether proactive coping and other personality variables could successfully buffer the effects of trauma. This study found a surprisingly low PTSD symptom level among the nursing students though they reported several distressing traumas. Also surprising, participants reported more distress from traumas relating to verbal abuse than to traumas relating to death and/or severe injury. Proactive coping, optimism, and self-esteem were negatively related to PTSD, anxiety, and depression. Further research will be needed to support these findings.

To you, for always holding my hand

TABLE OF CONTENTS

I.	Introduction.....	5
II.	Methods.....	12
III.	Results.....	18
IV.	Discussion.....	26
V.	References.....	
VI.	Tables	
	a. Table 1.....	
	b. Table 2.....	
	c. Table 3.....	
	d. Table 4.....	

Introduction

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text revision; DSM-IV-TR; American Psychiatric Association [APA], 2000) trauma is defined as an event in which a person experiences, learns about, or witnesses an event that involves threatened death to self, threatened or actual death of another individual, threatened or actual serious injury to themselves or another person, or threat to physical integrity (seen in cases of sexual abuse) and feelings of intense fear, helplessness, or horror during or after the event (APA, 2000).

Most of the work examining traumatic exposure in nurses and other health care professionals focuses mainly burnout. Trauma is different from burnout, in the sense that burnout is a long process in which physical and psychological exhaustion results from emotionally draining work situations (Maslach & Jackson, 1986). Recently, Niiyama, Okamura, Kohama, Taniguchi, Sounahara, and Nagao (2009) examined the effects of trauma on nurses and nursing students. Trauma can be experienced either directly or indirectly. Primary trauma is experienced directly by the person, whereas secondary trauma is either witnessed or learned about (Niiyama et al., 2009). While any exposure to trauma is likely to lead to stress, Niiyama et al.'s sample of nurses reported primary trauma as being the most prevalent source of exposure to traumatic situations. This is understandable given the nature of their work. Being frequently exposed to traumatic situations can lead to symptoms of Posttraumatic Stress Disorder (Ruggiero, Del Ben, Scotti, and Rabalais, 2003; Kessler, Sonnega, Bromet, Hughers, and Nelson, 1995; Resnick, Kilpatrick, Dansky, Saunders, & Best; 1993).

Coping refers to the methods used to handle the stress that arises from daily events or traumatic situations (Lazarus & Folkman, 1984). Lazarus' (1993) definition of coping is the most widely accepted. He conceptualized coping as "changing cognitive and behavioral efforts to manage psychological stress". In other words, coping is the response given when confronted with a stressful situation (Folkman & Lazarus, 1985). Coping is believed to buffer the effects of stressful situations and aid in recovery from traumatic events. According to Greenglass (2002) and Taylor et al. (2000), coping (in all its forms) is typically seen in current research as having many positive effects, especially in the improvement of physical and psychological health. Coping is also reputed to have positive effects on social relationships (Taylor & Brown, 1994). Coping is not a single, simple behavior: is a complex set of responses in which an individual assembles his/her resources in order to fulfill a goal (Greenglass, 2002). These resources may be internal or external. Coping requires the ability to balance past and future events while selecting the appropriate response (Bandura, 2001).

There are several types of coping. Among these is reactive coping which, as the name implies, deals with stresses that have already happened or are currently happening. The efforts are directed towards alleviating physical and/or psychological damage. This is the form of coping that has been the most studied and assessed to date (Greenglass, 2002).

A different type of coping which is starting to be researched more in depth is proactive coping. The main difference between proactive and reactive coping is that reactive coping is a backward-looking strategy whereas proactive coping is a forward-facing strategy. That is, proactive coping deals with events that have not yet occurred.

This type of coping consists of accumulating resources, such as social support and a sense of self-efficacy, which aid in planning and accomplishing goals and encouraging personal growth (Greenglass', 2002).

There is another form of coping very similar to proactive coping. Preventive coping involves mustering resources to minimize the likelihood and the effects of a stressor. This differs from proactive coping, where the motivation is thought to stem from the need to surpass a challenge. In preventive coping, the motivation for gathering the resources is the need to neutralize a threat. This should lead to lower worry levels in proactive than preventive coping (Schwarzer, 2000).

According to Aspinwall and Taylor (1997), proactive coping includes planning, setting feasible goals, organizing thoughts, and mental stimulation. Proactive coping does not address any specific stressors, but rather prepares the individual in general (Aspinwall & Taylor, 1997). According to them, proactive coping is most effective in combating the effects of a stressor when utilized early in the stressful event. The work presented by Hobfoll (1988, 1989) paves the way for the conclusion that proactive coping can be utilized to reduce the level of stress resulting from a stressful situation. Greenglass (2002) considers the possibility that proactive coping is not merely a tool or strategy to alleviate the harms caused by stress; rather it may simply be used as a way to improve one's overall life satisfaction. This view is shared by Taylor (1983) and Taylor & Brown (1988). Schwarzer and Taubert (2002) also argue that proactive coping is less focused on managing risk and more on dealing with the specific goals and challenges a person has to face in his/her daily life. Proactive coping has been found to buffer the effects of PTSD in college women despite the severity of the trauma, the number of traumas, and the time

between the trauma occurrence and participating in the experiment (Vernon, Dillon, & Steiner, 2009)

According to Greenglass (2002), social support can play a major role in dealing with stressful circumstances. She argues that individuals high in social support are “relatively resistant to the deleterious effects of stressful events” (p. 8, Greenglass, 2002). This effect is still being studied and some argue that it may be contingent upon the specific individuals and the specific situations and/or type of trauma (Himle, Jayaratne, & Thyness, 1991; Cohen & Wills, 1985). Some researches have also found that the effects of social support when dealing with traumas are stronger for women than men (Norcross & Prochaska, 1986). This may be due to the fact that women tend to use social support networks more often and more effectively than men (Greenglass, 1993; Etzion & Pines, 1981; Greenglass, 1982).

Nurses are often exposed to traumatic situations and stressful encounters (Robbins, 1999; Farrell, Bobrowski, & Bobrowski, 2006; Jonsson & Halabi, 2006; Oweis & Mousa Diabat, 2005; Rowe & Sherlock, 2005). They deal with death and serious injuries, which can significantly increase the level of stress and subsequently PTSD (Carson et al., 2000). Their sample also reported symptoms of other psychopathologies, such as depression, social phobia, panic, alcohol abuse, etc. Also reported to be traumatic was failed resuscitation and patients’ feelings of distress or pain. Nurses also encounter other kinds of upsetting or stressful circumstances, such as verbal abuse by physicians or colleagues (Niiyama et al., 2009). Of the samples in Carson’s study, 45% were classified as having PTSD based on the Posttraumatic Stress Disorder Checklist (PCL; Weathers et al., 1993).

Student nurses can also experience trauma in their training (Laws & Hawkins, 1995; Tully, 2004). Nurses, especially well-meaning student nurses, can start to feel and carry the pain of their patients, which has been theorized to eventually deplete their coping strength and leave them more vulnerable to other traumas and stresses (Figley, 1995). A patient trauma can be distressing enough to cause the nurse in charge to feel the trauma as well (Morrissette, 2004). According to Morrissette (2004), a large part of student nurse distress stems from their feeling of helplessness to relieve patient suffering. These students have not yet learned how to cope with the stresses of their arduous job and are more susceptible to its damages.

Posttrauma positive emotions can be related to or promote coping after stressful situations, especially if the victim experiences feelings of growth or benefit from the event (Vernon et al., 2008; Moskowitz, Folkman, Collette, & Vittinghoff, 1996). Gratitude has also been shown to decrease depression and enhance adaptive coping (Seligman, Steen, Park, & Peterson, 2005; Lyubomirsky et al., 2005). Gratitude affects coping by helping the individual reframe the traumatic event in such a way as to derive some benefit from the occasion. According to Watkins, Cruz, Holben, and Kolts (2008), gratitude “entails seeking for positive consequences to negative events”. Other researchers have found gratitude to mediate the effects of trauma and to decrease posttraumatic symptoms (Masingale et al., 2001; Kashdan, Uswatte, & Julian, 2005; Fredrickson, Tugade, Waugh, & Larkin, 2003).

Self-esteem can also have an effect on coping with trauma. According to Morina and von Collani (2006), individuals with low self-esteem report higher levels of traumatic symptoms. Morina and Ford (2008) also found that self-esteem was negatively related to

PTSD symptom severity. Other authors have found that both the onset and the course of PTSD can be altered with high levels of self-esteem (Brewin & Andrews, 2000; Breslau, Peterson, Schultz, & Lucia, 2004; Boscarino, 1995; Gray, Bolton, & Litz, 2004). Some authors have found that low levels of self-esteem can lead to more traumatic exposure, higher likelihood of developing PTSD, and more severe symptoms of PTSD (Kessler, Sonnega, Bromet, & Hughes, 1995; Galea et al., 2002; Adams & Boscarino, 2006; Bromet, Sonnega, & Kessler, 1998; Solomon & Mikulincer, 2006; Boscarino & Adams, 2009). Lower self-esteem seems to lead to higher levels of traumatic symptoms. This could be due to the individuals' higher propensity to experience traumas or an inability to cope with the traumas.

Furthermore, life satisfaction can also lead individuals to handle stress more effectively. According to Morina and Ford (2008), individuals reported fewer posttraumatic symptoms when reporting high levels of life satisfaction.

Several authors have found a relationship between external locus of control and psychopathological symptoms. External locus of control is the belief that outside events do not depend on one's own actions and behaviors (Chung, Preveza, Papandreou, & Prevezas, 2007; Dag, 1999; Holder & Levi, 1988; Kennedy, Lynch, & Schwab, 1998). According to Shaw's study (2000), PTSD symptoms are positively correlated with degree of external locus of control. Leiderman-Cerniglia (2002) found that individuals with internal locus of control were more resistant to PTSD symptoms by experiencing a sense of control over their lives and experiences. This, according to the author, led them to believe themselves to be able to handle the stresses following the traumas. Hood and Carter (2008) postulate that individuals with external locus of control are more likely to

not feel in control of the traumas experienced and to feel unable to deal with present and future traumas.

Lastly, optimism has also been found to mediate the effects of traumatic events. Scheier and Carter (1985) defined people high in optimism as individuals who “generally believe that good rather than bad things will happen to them” (p. 219). Optimism might also influence or act together with posttraumatic gratitude in that optimists are more likely to search and find some benefit resulting from the trauma (Tennen & Affleck, 1998). Benight and Bandura (2004) claim that high levels of optimism can predict an individual’s ability to cope with stresses. Carter, Scheier, Miller, and Fulford (2009) found that optimists not only anticipate good things happening to them, they also persevere in striving to reach their goals, even when faced with obstacles. Optimism can help individuals prepare themselves for future traumas (Tugade & Fredrickson, 2004; White et al., 2008), by potentially giving the individuals a sense of a better future or being able to draw something positive from the experience.

The current study aims to measure the effect these positive emotions and personality aspects can have on PTSD, depression, and anxiety symptom severity and whether they influence proactive coping. Also, we aim to measure the level of trauma in nursing students and their level of proactive coping. We expect PTSD to be negatively correlated with optimism, life satisfaction, self-esteem, social support, internal locus of control, and gratitude. We also expect these variables to lead to lower levels of PTSD. We expect these positive variables to correlate positively with proactive coping and other coping strategies. Lastly, we expect to establish that coping (both proactive and others) leads to lower levels of PTSD.

Concerning the trauma exposure, we expect the nursing students to show higher levels of PTSD than those found in previous undergraduate samples. We also expected them to have experienced more traumas than previous undergraduate samples.

Methods

Participants

Participants were recruited from nursing classes at the Boca Raton campus at Florida Atlantic University. There were 97 respondents from the nursing classes, 11 males (11.3%) and 86 females (88.7%). Participants in this group were between the ages of 20 and 62 ($M=37.7$, $SD=11.1$). 68.0% were White, 3.1% were Asian-American, 13.4% were Black/African-American, 11.3% were Hispanic, 0.0% were Native American, 1.0% were Multiracial, and 3.2% categorized themselves as Other. 3.1% of the participants were traditional juniors, 2.1% seniors, 9.3% were in the accelerated program (acquiring a nursing degree in one year), 41.2% were in the RN to BSN program, and 44.3% were in the graduate program. These students were not offered compensation for participation.

Procedure

Participants received a link to a secured server (surveymonkey.com), where they completed a battery of questionnaires in one sitting. The questionnaires were presented in one of three semi-randomized orders.

Participants were first directed to a page containing the consent form and after digitally “signing” they were able to continue to the questionnaires. After completing the questionnaires, participants were directed to a debriefing form.

Measures

Participants completed several of questionnaires designed to measure coping, psychopathology symptoms (Posttraumatic Stress Disorder, depression, and anxiety symptom severity), individual differences, personality traits and emotions, and finally, trauma exposure.

Psychopathology Symptoms

The Posttraumatic Stress Disorder Checklist (PCL; Weathers et al., 1993) was used to measure PTSD symptom severity. This scale includes 17 items corresponding to the 17 DSM-IV PTSD symptoms (APA, 2000). Participants were asked to specify whether their worst event happened to them as a nurse/nursing student or in their outside life (not as a nurse/nursing student). After that, participants were asked to clarify if they were completing the questionnaire thinking in terms of their worst event as a nurse/nursing student or in terms of their worst event in their outside life (not as a nurse/nursing student). Participants answer on a 5-point Likert scale about how much each symptom has bothered them in the past month (1=Not at all, 2= A little bit, 3= Moderately, 4= Quite a bit, 5= Extremely). Internal consistency of this scale in the present study was strong, $\alpha=.92$.

The Generalized Anxiety Disorder scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006) measures participants' generalized anxiety disorder (GAD) symptoms by asking them to indicate how often they have experienced seven different symptoms such as worry or nervousness during the previous two weeks (1= Not at all, 2= Several days, 3= More than half the days, 4= Nearly every day). Internal consistency of this scale in the present study was strong, $\alpha=.92$.

The depression module of the Patient Health Questionnaire (PHQ-9; Spitzer, Kroenke, & Williams, 1999) measures participants' experience of depressive symptoms over the past two weeks. Participants indicate how often different symptoms have bothered them on a four-point scale (1= Not at all, 2= Several days, 3= More than half the

days, 4= Nearly every day). Internal consistency of this scale in the present study was strong, $\alpha=.89$.

Coping

The Proactive Coping subscale of the Proactive Coping Inventory (PCI; Greenglass, 2002) measures participants' perception of their own ability to set and attain goals, and their positive views of adversity. Participants indicate the personal veracity of 14 statements on a 4-point Likert scale (1= Not at all true, 2= Hardly true, 3= Moderately true, 4= Exactly true). Internal consistency of this scale in the present study was strong, $\alpha=.86$.

The Brief COPE (Carver, 1997) was used to measure participants' coping strategies for negative events. Participants were asked to specify whether their worst event happened to them as a nurse/nursing student or in their outside life (not as a nurse/nursing student). Participants were then asked to clarify if they were completing the questionnaire thinking in terms of their worst event as a nurse/nursing student or in terms of their worst event in their outside life (not as a nurse/nursing student). Participants indicate to what extent they have been employing 28 different strategies on a 4-point scale (1= I haven't been doing this at all, 2= I've been doing this a little bit, 3= I've been doing this a medium amount, 4= I've been doing this a lot). This scale has 14 subscales, each with two questions: self-distraction (items 1 and 19), active coping (items 2 and 7), denial (items 3 and 8), substance use (items 4 and 11), use of emotional support (items 5 and 15), use of instrumental support (items 10 and 23), behavioral disengagement (items 6 and 16), venting (items 9 and 21), positive reframing (items 12 and 17), planning

(items 14 and 25), humor (items 18 and 28), acceptance (items 20 and 24), religion (items 22 and 27), and self-blame (items 13 and 26).

Personality Traits and Emotions

The Gratitude Scale (McCullough, Emmons, & Tsang, 2001) measures trait gratitude. Trait gratitude differs from posttrauma gratitude in that trait gratitude is not directed at a specific event, rather is a common feeling present throughout the person's life. Participants rate their agreement with six statements on a 7-point Likert scale (1= Strongly disagree, 2= Disagree, 3= Slightly disagree, 4= Neutral, 5= Slightly agree, 6= Agree, 7= Strongly agree). Internal consistency of this scale in the present study was moderate, $\alpha=.71$.

Trauma Emotion Questionnaire (Vernon, 2009) measures 14 negative and 4 positive emotions by asking participants to indicate to what extent they have felt 18 different emotions after their worst work related event on a 5-point scale (1= Very slightly or not at all, 2= A little, 3= Moderately, 4= Quite a bit, 5= Extremely). Anger is measured with the words "angry", "furious", "hostile", and "irritable". Fear is measured with the words "afraid", "frightened", and "scared". Guilt is measured with the words "angry at self", "disgusted with self", "dissatisfied with self", and "guilty". Sadness is measured with the words "blue", "downhearted", and "sad". Lastly, gratitude is measured with the words "relieved", "grateful", "fortunate", and "appreciative of life". Participants are instructed to answer these questions thinking about their worst nursing related event. Internal consistencies in the present study were strong for all emotion subscales: anger, $\alpha=.84$, fear, $\alpha=.96$, guilt, $\alpha=.87$, sadness, $\alpha=.94$, and gratitude, $\alpha=.86$.

The Locus of Control scale (Rotter, 1966) measures whether participants have an internal or external locus of control concerning their lives. Participants rate their agreement to 26 statements on a 5-point Likert scale (1= Strongly disagree, 2= Disagree, 3= Neither agree nor disagree, 4= Agree, 5= Strongly agree). A low score indicates an internal locus of control whereas a high score indicates an external locus of control. Internal consistency of this scale in the present study was weak, $\alpha=.42$, so the scale was dropped from analyses.

In the demographics questionnaire, the participants are asked about their level of religiosity, rating their level of religious/spiritual identification on a 5-point scale (1= Not at all religious/spiritual, 2= Slightly religious/spiritual, 3= Moderately religious/spiritual, 4= Mostly religious/spiritual, 5= Very religious/spiritual).

The optimism scale (Life Orientation Test-Revised, LOT-R; Scheier, Carver, & Bridges, 1994) measures participants' general level of optimism towards life. Participants rate their agreement with 10 statements on a 5-point scale (1= I agree a lot, 2= I agree a little, 3= I neither agree nor disagree, 4= I disagree a little, 5= I disagree a lot). Internal consistency of this scale in the present study was moderate, $\alpha=.75$.

The Self-Esteem scale (Rosenberg, 1965) measures participants' general self-esteem. Participants rate ten statements based on the level of agreement on a 5-point Likert Scale (1= Strongly disagree, 2= Disagree, 3= Neither agree nor disagree, 4= Agree, 5= Strongly agree). Internal consistency of this scale in the present study was strong, $\alpha=.90$.

Demographics

Participants were also asked to disclose age, gender, race/ethnicity, religious affiliation, religiosity, current year in school type of nursing program currently enrolled (e.g., advanced, RN to BSN), history with regard to depression, anxiety, eating disorders and/or substance use. Nursing students were also asked their types of nursing rotations, and whether they have ever had an upsetting event in any rotation. If yes, they were asked to specify their role, emotions, and outcome.

Individual Differences

The Life Satisfaction Scale (Diener, Emmons, Larsen, & Griffin, 1985) measures how satisfied participants are with their lives. Participants indicate their agreement with five statements on a 7-point Likert scale (1= Strongly disagree, 2= Disagree, 3= Slightly disagree, 4= Neither agree nor disagree, 5= Slightly agree, 6= Agree, 7= Strongly agree). Internal consistency of this scale in the present study was strong, $\alpha=.87$.

The Social Support scale (Cohen, Mermelstein, Kmack & Hoberman, 1985) measures participants' perceived levels of social support. This relates to how much participants feel they are able to depend on others in an hypothetical time of need. Participants mark 15 statements as being "mostly true" or "mostly false" about themselves. These included items such as “there is at least one person I know whose advice I really trust” and “when I feel lonely, there are several people I could call and talk to”. Internal consistency of this scale in the present study was moderate, $\alpha=.73$.

Trauma Exposure

Nursing-specific traumas were measured by asking participants to specify whether they experienced a list of events and how much they were affected/upset by each of the events. This list was drawn in part from one of the authors' experiences with

nursing and nursing training and in part from the findings of Mealer, Shelton, Berg, Rothbaum, and Moss (2007) regarding upsetting events for critical care nurses.

Participants rated how much they were affected/upset by each event on a 5-point scale (1= Not at all, 2= A little bit, 3= Quite a bit, 4= Extremely, 5= Did not experience it).

The Life Events Checklist (LEC), taken from the Clinician-Administered PTSD Scale (Blake et al., 1990), was used to ascertain trauma history outside of participants' life as nursing students. Participants described their involvement with 17 possible events such as natural disaster or serious injury (1= Happened to you, 2= Witnessed it, 3= Learned about it, 4= Not sure, 5= Doesn't apply). Participants also answered questions concerning their age when the event occurred, whether the event happened more than once or just once, whether anyone was seriously injured, threatened, or killed, whether someone's life was in danger, and their emotions (fear, terror, helplessness) during the event. They were also asked to describe the event in some detail. If the participant had never experienced any of the events listed, they were asked to describe the most stressful experience they had ever had.

Results

Nursing-related negative events and trauma exposure

Table 1 shows the extent and nature of nursing-related traumas and negative events, listing the percentage of participants endorsing various types of events and the mean distress reaction for each event. Most participants reported having experienced all or most of the negative events listed (ranging from 99% to 76% of participants citing various events). Participants who had not experienced the event were not included in calculating the mean of the distress for each event.

Exploratory factor analysis (EFA) of distress responses to the events was conducted to determine whether there was a factor structure to the responses. EFA using principal axis factoring and Oblimin rotation was performed and factors with eigenvalues greater than 1.0 were retained. The results suggested that the events could be divided into six subgroups and the following theoretical labels were applied: working conditions, student issues, helplessness during care, fear during care, patient physical issues, and death. Each subgroup of events was then examined in further detail.

Events related to working conditions, unexpectedly, were found to be the most upsetting. “Feeling overextended” was the most upsetting event in the list ($M=2.98$), followed by “verbal abuse from physicians” ($M=2.68$), “verbal abuse from patient’s family members” ($M=2.62$), “verbal abuse from other nurses” ($M=2.52$), and “dealing with combative patients” ($M=2.42$). Even the least upsetting event in this subgroup was still one of the most upsetting events in the overall list.

Student issues, as expected, were found to be mildly upsetting. “Having patients not wanting students to take care of them” was rated on average as a little upsetting

($M=1.90$) whereas “having nurses not wanting nursing students around” ($M=2.56$) was rated on average as between “a little” and “quite a bit”. Helplessness and fear during care, also as expected, were rated as being moderately distressing. “Experiencing fear of doing something wrong” was rated on average the most distressing in these subgroups ($M=2.83$); this was also rated the second most distressing event in the list overall. “Experiencing fear of hurting the patient or causing pain” was rated the next most distressing ($M=2.52$), followed by “not being able to save a specific patient” ($M=2.43$) and “seeing children die” ($M=2.28$).

Surprisingly, the least upsetting events were related to physical patient issues, all of which were rated, on average, as less than “a little bit” upsetting. “Seeing open surgical wounds” was the least upsetting ($M=1.48$), “seeing massive patient bleeding” was slightly more upsetting ($M=1.76$), and “seeing trauma-related injuries” was the most upsetting in this subgroup ($M=1.94$).

Patient death was generally rated as mildly upsetting. The most upsetting event in this subgroup was “seeing patients die” ($M=2.58$, halfway between rating anchors of “a little bit” and “quite a bit”) followed by “involvement with end of life care” ($M=2.46$), “performing/observing post mortem care” ($M=2.21$), and lastly, “performing futile care to patients” and “performing/observing cardiopulmonary resuscitation” ($M=1.98$).

Descriptive Statistics

Table 2 lists descriptive statistics for all variables used in analyses. Surprisingly given the nature of nursing, PTSD symptom severity was fairly low ($M=26.30$, $SD=11.50$) as were GAD ($M=12.06$, $SD=5.52$) and depression symptom severity ($M=13.21$, $SD=5.42$). Vernon et al. (2009) also found a low PTSD symptom severity

level ($M=30.62$), though their sample was comprised of undergraduate women. Participants reported being bothered by individual PTSD symptoms on an average of 1.7 (between 1="not at all" and 2="a little bit"). Blanchard et al. (1996) reported higher symptoms severity ($M= 45.8$, $SD= 16.1$) in their psychometric study of this scale; however, their sample consisted only of victims of motor accidents and sexual traumas. Two different PTSD diagnostic cutoff scores are used for civilians. Blanchard et al. (1996) use a cutoff score of 44 whereas Weathers et al. (1993) use a stricter score of 50. Ruggiero et al. (2003) found the cutoff score of 44 to be most efficient in diagnosing PTSD in a sample of undergraduate students. Although average PTSD symptom level was low, even with the stressful work environment, 9.3% of our sample scored above the 44 cutoff score and 5.2% scored above 50. In studies conducted with college undergraduates, the cutoff score of 44 was found to be reached by roughly 12.6-13.5% of the participants (Ruggiero et al., 2003; Vernon et al. , 2009). The depression symptom level was lower than the levels reported by the psychometric study conducted by Martin et al (2005) ($M= 15.92$, $SD= 3.07$); however, their sample consisted of the general population in Germany. In the study by Kroenke, Spitzer, & Williams (2001), the authors reported a mean level of 17.1 ($SD= 6.1$), using college- age participants. In another study by Kroenke et al. (2007), the authors reported a GAD symptom level, on average, slightly higher than our sample ($M= 14.0$).

However, rather unexpectedly, participants' levels of proactive coping were quite high ($M=45.32$, $SD= 5.73$). Greenglass, Fiksenbaum, and Eaton (2006) reported levels somewhat lower ($M=37.56$) in their study with older adults from different employment backgrounds. While our sample was still on average around 40 years old, we still had

several older adults participate. Vernon et al.'s (2009) study also reported lower levels of proactive coping ($M= 42.83$), though again, their sample was quite different from the present study's. The Brief Cope scale was used to measure different coping strategies, which participants reported using frequently ($M=40.12$, $SD=12.65$). This was lower than the level reported by Perczek, Carver, Price, and Pozo-Kaderman (2000). The authors found a mean score of 58.85 in their sample of bilingual undergraduate students at the University of Miami.

In terms of trauma exposure in daily life (outside of nursing experiences), measured with the LEC, participants reported on average 3.78 traumas ($SD=2.30$), with the most common being natural disaster (reported by 72.2%) and transportation accidents (reported by 61.9%). In a psychometric study done by Elhai et al. (2007), the authors found that the most common traumatic event in their sample was transportation accidents (78.6%), physical assaults (45.6%), and natural disasters (40.0%). The prevalence of natural disaster traumas in our sample is likely due to the incidence rate of hurricanes in the past five years.

Posttrauma emotions were measured in order to determine how participants responded to their worst trauma in the hours and days after it happened. On average, participants reported high levels of anger ($M=8.96$, $SD=4.45$) and guilt ($M=7.26$, $SD=4.19$) and moderate levels of fear ($M=5.72$, $SD=3.38$) and sadness ($M=6.66$, $SD=3.77$). Participants also reported moderate levels of posttrauma gratitude ($M= 9.70$, $SD= 4.92$). The level of posttrauma gratitude was somewhat lower than what Vernon (2009) reported ($M=11.41$).

In terms of the general level of a number of individual difference variables, participants were found to have fairly low levels of social support ($M=27.77$, $SD=2.55$), whereas they reported quite high levels of optimism ($M=38.06$, $SD=6.86$), life satisfaction ($M=26.26$, $SD=6.85$), and self-esteem ($M=38.69$, $SD=6.30$). Surprisingly, although positive personality variables such as optimism were high, trait gratitude was not as high ($M=9.81$, $SD=4.28$). Aspinwall and Taylor (1997) in their study with undergraduate students reported self-esteem levels on average of between 34.24 for the high self-esteem group and 29.07 for the low self-esteem group. So our sample, though significantly older and in more stressful situations, is still reporting high self-esteem despite their difficulties. Our levels of optimism were also high compared to another study done by Ouwehand, de Ridder, and Bensing (2008). Their study, done with older adults, reported levels of optimism to be on average 23.1, lower than what our sample reported. Also, our sample reported higher levels of life satisfaction than the original study by Diener et al. (1985) reported ($M=23.5$, $SD= 6.43$). Their sample was comprised of undergraduate students at University of Illinois and was also much larger than the present study's. Lastly, our sample reported lower levels of social support than the sample in Cropley and Steptoe's (2005) study ($M=32.3$, $SD= 7.2$); however, their sample was quite different from ours- their sample consisted of schoolteachers in London.

Scale Correlations

Correlations were run between all the variables in order to determine their relationships (Table 3). As expected PTSD symptom severity was significantly positively correlated with GAD and depression symptom severity ($r_s=.71$ and $.60$, respectively, $p_s<.01$). This suggests that higher levels of PTSD tend to accompany higher levels of

depression and/or anxiety. PTSD symptom severity was also significantly negatively correlated with proactive coping ($r = -.32, p < .05$), though surprisingly it was not correlated with the brief cope scale (measuring frequency of use of a range of coping strategies). PTSD was also negatively correlated at the $p < .01$ level with optimism ($r = -.60$), life satisfaction ($r = -.36$), and self-esteem ($r = -.56$). These results suggest that people with higher levels of proactive coping, optimism, life satisfaction, and self-esteem tend to report lower levels of PTSD. Against expectations, PTSD was not significantly correlated with distress reactions to negative nursing events, number of everyday non-nursing traumas, or level of social support.

Depression, not surprisingly, was positively correlated most strongly with GAD ($r = .75, p < .01$). This suggests that individuals high in depression are also likely to be high in generalized anxiety. Depression also correlated positively with overall coping strategy use ($r = .29, p < .05$). The scale that measured coping strategies had some examples of maladaptive coping, such as using drugs or alcohol, and therefore it is not too surprising that some of these coping strategies could increase levels of depression or be undertaken in response to them. As expected, depression was significantly negatively correlated with proactive coping ($r = -.39, p < .01$), life satisfaction ($r = -.55, p < .01$), optimism ($r = -.72, p < .01$), and self-esteem ($r = -.60, p < .01$). Against expectations, it did not correlate significantly with exposure to trauma or negative nursing events or with social support.

Correlations for the generalized anxiety scale were very similar to the depression scale. GAD symptom level was most strongly positively correlated with coping strategies ($r = .43, p < .01$). It correlated negatively with proactive coping ($r = -.49, p < .01$), optimism

($r = -.65, p < .01$), life satisfaction ($r = -.37, p < .01$), and self-esteem ($r = -.53, p < .01$).

Surprisingly it did not correlate significantly with trauma exposure (nursing or outside life) or social support.

Proactive coping had mixed correlations. It did not correlate significantly with coping strategy use, nursing negative events, trauma exposure, or social support.

However, it did correlate significantly with optimism ($r = .48, p < .01$), life satisfaction ($r = .52, p < .01$), and self-esteem ($r = .61, p < .01$).

Regression Analyses

To examine whether associations of the individual difference variables with the psychopathology variables were independent, three hierarchical multiple regression analyses were conducted. PTSD, GAD, and depression were the dependent variables for each of the three regression analyses. Proactive coping and coping strategy use were entered into the equation in the first step, and optimism, self-esteem, life satisfaction, and social support were entered in the second step.

Table 4 shows the results for each of the regression analyses. In the regression with PTSD as the dependent variable, model 1 suggests that proactive coping is independently associated with lower levels of PTSD; however, coping strategy usage (Brief COPE) did not have a significant impact. In model 2, optimism and self-esteem were related to significantly lower levels of PTSD symptom severity, however coping strategy use was no longer significantly independently related. Life satisfaction, social support, and proactive coping were also not independently related to PTSD levels.

In the second regression with GAD as the dependent variable, model 1 showed proactive coping being independently related to significantly lower levels of anxiety,

whereas coping strategy usage was actually related to higher levels of anxiety. In model 2, optimism was significantly independently related to lower levels of GAD whereas life satisfaction was related to higher levels. Self-esteem and social support did not affect GAD levels significantly. In this analysis, proactive coping was not significantly associated with GAD; however, coping strategy use was significantly independently related.

Lastly, in the analysis with depression as the dependent variable, model 1 proactive coping tended to be associated with significantly lower levels of depression symptomatology but coping strategy use was not significantly related. In Model 2, optimism and self-esteem were independently related to lower levels of depression. In this analysis, neither proactive coping nor coping strategy use were significantly independently related to depression. Life satisfaction and social support were also not independently related to depression.

Discussion

This study has yielded some surprises, with results that contradict a priori expectations. One of the more surprising findings was that despite nursing being generally considered a stressful field, nursing students reported lower levels of PTSD than previous studies on general undergraduate population (Vernon et al., 2009; Blanchard et al., 1996). Even though PTSD scores in the studied population were low, around 9% of our sample still scored above the PTSD diagnostic cutoff score. We had expected to find a higher incidence of nurses reaching the PTSD cutoff score as previous studies conducted with undergraduate students found that roughly 13% reached the cutoff score (Ruggiero et al., 2003; Vernon et al., 2009). Some explanations for this finding were considered: Maybe the nursing students' preparation for the stresses of the field may have led them to learn more effective coping strategies. Also, the student nurses were older than younger college undergraduates. Another possible explanation may be that hospital culture led to underreporting. Or it could be that nurses are unwilling to disclose PTSD symptoms for fear of being considered weak or unprofessional.

It was not entirely surprising to find that the most upsetting events involved exhaustion and the verbal abuse. Also, it is not surprising, given the nature of their work that fear and helplessness rated as being particularly distressing. However, the degree of distress experienced was unexpectedly low. In our sample, on average, the most distressing event was rated as only "mildly upsetting". This begs the question: what is the most distressing situation for nurses and nursing students? According to previous studies, nursing students typically experience many highly distressing traumas during their training. Frequently, these traumas do not result directly from witnessing or experiencing

the traumatic event, often merely seeing the aftereffects is enough to lead to distress (Laws & Hawkins, 1995; Tully, 2004; Figley, 1995). Furthermore, Morrissette (2004) found that nursing students often feel distress over their feelings of helplessness or inability to help the patient.

As in the case of PTSD, the nurses' general symptom levels for depression and GAD were lower than expected. Levels were lower than those found with German citizens (Martin et al., 2005) and undergraduate students (Kroenke, Spitzer, & Williams, 2001, Kroenke et al., 2007). Again, this could result from a reluctance to admit weakness, or from particularly effective coping strategies, or even from a maladaptive disconnection from emotion.

Our sample reported an unexpectedly high level of proactive coping which regression analyses showed was independently related to lower levels of PTSD. The conclusion that their distress and psychopathology symptom levels were low because of effective coping strategies is supported by the unusually high level of proactive coping. In an extensive study done by Greenglass, Fiksenbaum, and Eaton (2006) with a diverse group of older adults with many years of experience in different areas, the authors found a mean almost ten points lower than the mean found in the present study. Other studies have also found lower proactive coping levels in college undergraduates (Vernon et al., 2009). The high level of proactive coping could also mean that nurses are aware of the stresses of the field and prepare themselves accordingly and that proactive coping is providing a good buffer against the injurious effects of occupational trauma.

Our regression analyses also showed that other variables such as optimism, life satisfaction, and self-esteem may be a safeguard against the effects of trauma. These

findings reflect the conclusions drawn by other authors. The present study found that self-esteem was independently negatively related to PTSD and depression symptom severity. Previous research has also shown a negative relationship between self-esteem and PTSD (Morina & Ford, 2008; Morina & Von Collani, 2006). This study adds to current literature, suggesting a similarly negative relationship between self-esteem and depression. Benight and Bandura (2004), Tugade and Fredrickson (2004), and White et al. (2008) have also found an inverse relationship between PTSD symptoms and optimism.

Our sample did not report particularly high levels of posttrauma gratitude, which is not wholly surprising. Vernon et al. (2009) reported a slightly lower level of posttrauma gratitude in their sample of college undergraduates than was found in the present study. This could be due to the fact that the traumas experienced by nurses are harder to cope with and/or more difficult to detect something positive that derived from the experience. Since most of the traumas reported by our sample consisted of seeing others in pain, it is understandable that their posttrauma gratitude and trait gratitude levels are low. Seeing the aftereffects of different traumas can lead nurses to see only the adverse side of traumatic situations, rather than the positive side, such as the heroics by one person or the posttrauma growth.

The levels of social support reported by our sample were unusually low. Previous research found a higher level of social support, though their sample of school teachers in London was quite different from the present study's (Cropley & Steptoe, 2005). Maybe our questionnaire did not properly measure the level of social support in our sample. Extensive research has shown the negative relationship between social support and

traumatic effects. This effect could also be due to our fairly small sample of older nurses who may see too high a turnover rate of nurses to form any significant bond between one another.

The low social support level could also have resulted from different types of social support being measured by different scales. Perhaps, this scale is not adequate to measure the levels of social support experienced by nurses and nursing students. Our study social support measurement asked questions concerning social bonds in general, not specifically to other nurses. Investigating the social bonds between nurses might be better suited to measure their level of social support. Revicki & May (1985) found that among family physicians, support provided by family members was more beneficial at preventing depressive symptoms than support provided by peers. Other studies have found that measures of perceived social support are more effective than measuring amount of friends and/or family or the roles provided by others (Blazer, 1982; Antonucci & Israel, 1986).

These discrepancies between the current findings and those of past studies are likely due to the great diversity in definitions of social support (Cohen & McKay, 1984; Heller, 1979; Heller & Swindle, 1983; Shumaker & Brownell, 1984) or great variability of methods of measuring social support (Barrera, 1981; Shumaker & Brownell, 1984; Tardy, 1985; Turner, Frankel, & Levin, 1983). Social support can actually be conceptualized into three distinct components: social embeddedness, perceived social support, and enacted support (Barrera, 1981; Barrera, Sandler, & Ramsey, 1981; Gottlieb, 1983; Heller & Swindle, 1983; Barrera, 1986).

Perceived social support is the realization of having strong social ties with others. This is typically measured by measuring the amount of perceived availability and the adequacy of interactions (Holahan & Moos, 1981; Procidano & Heller, 1983; Turner et al., 1983). This measures the belief in the effectiveness and existence of the social support network. Lastly, enacted support is the actions performed by others towards the participants. What the people in one's social support network actually do during the coping process is greatly important for the coping process (Cowen, 1980; Gottlieb, 1978; Liem & Liem, 1979; Gore, 1981). The present study measures only perceived social support. Perhaps measuring enacted support would also be useful when measuring how much nurses depend on others for support during stressful times.

Social support has been measured with several scales and questionnaires. Cohen, McGowan, Fooskas, and Rose (1984) have studied the relationship between two scales of social support: The Inventory of Socially Supportive Behaviors (ISSB), measuring enacted support, and the ISEL, the measure of perceived support used in the present study. They found that both scales, while effective, measured different aspects of social support and their respective affects on coping with stress. It is safe to conclude that these two concepts are part of social support but measure different aspects of social support effects (Turner et al., 1983). When attempting to measure social support in professionals, such as nurses, who may depend only on people within the field for support, it might be helpful to incorporate different measures of the different aspects of social support.

According to Barrera (1986), measures of social support are hindered when several aspects of social support are included. The present study's social support questionnaire measured how much our participants perceived others to provide support in

their time of need. However, as seen in previous research, this might not actually be capturing their most useful or most used aspect of social support. Future studies using similar samples might use two different social support measures, to capture the support received from others outside the nursing field and from fellow nursing colleagues. Since using one scale for several aspects of social support might not be as effective, then researchers could include several measures each focusing on a single component of social support.

Our sample reported high levels of optimism, self-esteem, and life satisfaction relative to previously reported levels (Aspinwall & Taylor, 1997; Ouwehand, de Ridder, & Bensing, 2008; Diener et al., 1985). This could be due to the mentality nurses and nursing students may possess. They might draw great pride from performing a helpful service which took many years of hard work and study. It is also possible that the participants are over-reporting their feelings of optimism, self-esteem, and life satisfaction.

PTSD correlated negatively with proactive coping, optimism, self-esteem, and life satisfaction. However, it did not correlate with distress from nursing-related traumas and social support. It is not surprising that PTSD was negatively correlated with our positive personality variables, though we expected it to correlate with distress from nursing events and social support. Other authors, however, argue that this effect may differ for individuals in different situations or experiencing different types of traumas (Himle, Jayarantne, & Thyness, 1991; Cohen & Wills, 1985). These results might be due to our small sample size. It could also reflect a too simplistic view of PTSD and its buffers.

Workers in different fields might experience PTSD differently, by showing different symptoms or by experiencing them in dissimilar degrees.

PTSD symptom level was negatively correlated with proactive coping. This finding supports previous research (Vernon et al., 2009) and our own hypotheses. To examine the effects without the shared variance between the variables, we ran regression analysis. Our regression analysis showed that proactive coping was associated with lower levels of PTSD; however, this relationship was no longer significant when optimism and self-esteem were included. Similar results were found with anxiety and depression. Proactive coping was related to lower levels of anxiety and depression in the first model, however, not independently of the additional variables added to the second model. Other coping strategies and optimism both independently affected the levels of anxiety. Likewise, optimism and self-esteem were independently associated with levels of depression.

These results are somewhat unusual and do not completely follow the pattern seen in previous research. Others have reported that proactive coping is independently related to PTSD and lead to lower PTSD symptoms independently of other factors (Vernon et al., 2009). However, the previous study did not include the positive personality variables used in the present study's second model of the regression analysis. It may be the case that the nursing population responds differently to PTSD, anxiety, and depression. Also, the two samples varied greatly, in size, age, and professional area. This could have led our results to deviate from what previous research has found.

Student nurses and nurses with ample field experience are still largely unstudied and extremely vulnerable to traumatic circumstances (Robbins, 1999; Farrell, Bobrowski,

& Bobrowski, 2006; Jonsson & Halabi, 2006; Oweis & Mousa Diabat, 2005; Rowe & Sherlock, 2005). The unexpected results found in this study, the many conjectures and explanations that were raised and that demand further study, and the large types of population not covered (such as experienced nurses), shows that this area merits further and deeper investigation.

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Table 1
Nursing Trauma Exposure Descriptive Statistics

	Not	Upsetting	
	experienced	<i>M</i>	<i>SD</i>
	%		
<i>Death issues</i>			
Seeing patients die	6.1	2.58	1.07
Performing/observing post mortem care	9.2	2.21	1.17
Performing/observing cardiopulmonary resuscitation	5.1	1.98	0.95
Involvement with end of life care	5.6	2.46	1.01
Performing futile care to patients	7.1	1.98	1.13
<i>Working conditions</i>			
Dealing with combative patients	1.5	2.42	1.03
Verbal abuse from physicians	9.2	2.68	1.24
Verbal abuse from family members	5.1	2.62	1.15
Feeling overextended	3.6	2.98	1.12
Verbal abuse from other nurses	9.2	2.52	1.30
<i>Patient physical issues</i>			
Seeing open surgical wounds	1.0	1.48	0.75
Seeing trauma-related injuries	9.7	1.94	1.00
Seeing massive patient bleeding	7.1	1.76	0.99
<i>Student issues</i>			
Having patients not wanting students to take care of them	10.2	1.90	1.08
Having nurses not wanting nursing students around	6.1	2.56	1.13
<i>Helplessness during care</i>			
Seeing children die	24.0	2.28	1.78
Not being able to save a specific patient	10.2	2.43	1.26
<i>Fear during care</i>			
Experiencing fear of hurting the patient or causing the patient harm	1.0	2.52	0.86
Experiencing fear of doing something wrong	1.0	2.83	0.86

Note. Nursing participants rated the degree to which each experience was upsetting on a Likert scale from 1=not at all upsetting to 4= extremely upsetting.

Table 2
Descriptive Statistics for All Variables

	<i>M</i>	<i>SD</i>	<i>min</i>	<i>max</i>	<i>scale min</i>	<i>scale max</i>
Psychopathology						
PTSD	26.30	11.50	17	72	17	85
Anxiety	12.06	5.52	7	27	7	28
Depression	13.21	5.42	9	36	9	36
Coping						
Proactive coping	45.32	5.73	31	55	14	56
General coping	54.85	12.81	28	80	28	112
Trauma Exposure						
Number of traumas	3.78	2.3	0	17	0	17
Nursing traumas	40.12	12.65	7	73	0	76
Emotion and Personality						
Social support	27.77	2.55	21	30	15	30
Trait gratitude	9.81	4.28	6	29	6	42
Optimism	38.06	6.86	20	48	10	50
Life satisfaction	26.26	6.85	5	35	5	35
Posttrauma anger	8.96	4.45	4	20	4	20
Posttrauma fear	5.72	3.38	3	15	3	15
Posttrauma guilt	7.26	4.19	4	20	4	20
Posttrauma sadness	6.66	3.77	3	15	3	15
Total negative posttrauma emotion	28.60	10.65	14	62	14	70
Posttrauma gratitude	9.70	4.92	4	20	4	20
Self-esteem	38.69	6.30	17	46	10	50

Note: Number of traumas refers to amount of non-nursing traumas experienced directly by the participant, not including those witnessed or confronted with in any other way.

Table 3

Correlations of psychopathology and positive variables

	PTSD N=53	Depression N=53	GAD N=53	Proactive Coping N=53	Coping Strategies N=53	Nursing Traumas N=53	Outside Traumas N=53	Optimis m N=53	Life Satisfaction N=53	Social Support N=53	Self- Esteem N=53
Psychopathology											
PTSD											
Depression	.71***										
Anxiety	.60***	.75***									
Coping											
Proactive Coping	-.32*	-.39**	-.49***								
Coping Strategies	.27	.29*	.42**	-.23							
Trauma Exposure											
Nursing Traumas	.18	.17	.04	-.05	.01						
Outside Traumas	.04	.03	.03	.03	.25	.17					
Positive Variables											
Optimism	-.60***	-.71***	-.65***	.48***	-.17	-.15	-.08				
Life Satisfaction	-.36**	-.55***	-.37**	.52***	-.30*	-.15	-.25	.66***			
Social Support	-.15	-.10	.05	.14	.02	.02	-.07	.22	.22		
Self-Esteem	-.57***	-.60***	-.53***	.61***	-.19	-.14	-.10	.63***	.62***	.19	

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 4

Hierarchical Regression Analyses Predicting PTSD, Depression, and Anxiety

Model	Individual Predictors	β		
		PTSD	Anxiety	Depression
1	Proactive Coping	-.27*	-.41**	-.34*
	Coping Strategy Usage	.21	.33**	.21
2	Proactive Coping	.10	-.18	.09
	Coping Strategy Usage	.20	.33**	.15
	Optimism	-.50**	-.64***	-.56***
	Self-Esteem	-.42*	-.19	-.26*
	Life Satisfaction	.24	.32*	-.04
	Social Support	-.03	.18	.07

Note: For PTSD Questionnaire: Model 1: $R^2=.14^*$; Model 2: $R^2=.47^{***}$, $\Delta R^2=.33^{***}$. For Anxiety Questionnaire: Model 1: $R^2=.34^{***}$; Model 2: $R^2=.63^{***}$, $\Delta R^2=.29^{***}$. For Depression Questionnaire: Model 1: $R^2=.19^{**}$; Model 2: $R^2=.58^{***}$, $\Delta R^2=.39^{***}$.

* $p < .05$. ** $p < .01$. *** $p < .001$.