# WORLD ASSUMPTIONS, POSTTRAUMATIC GROWTH, AND CONTRIBUTING FACTORS IN A POPULATION OF NEW NURSES

by

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# ABSTRACT

MICHELLE THERESA JESSE. World assumptions, posttraumatic growth, and contributing factors in a population of new nurses.
(Under the direction of DR. RICHARD G. TEDESCHI)

This multi-site study assessed newly licensed, newly hired nurses to determine whether their professional experiences contribute to the development of posttraumatic growth (PTG) and well-being. Also, how world assumptions, coping, social support, and/or nursing specific stress contribute to outcomes of interest. Nurses ($N = 49$) completed questionnaires within three weeks of their first nursing position and again eight and sixteen weeks later. Findings indicated that nurses reported growth at relatively stable levels over the course of the study and at similar or higher levels to previous cross-sectional studies with similar helping professions. Repeated-measures mixed modeling indicated that greater stress associated with work-specific events ($p = .006$), challenges to one's core beliefs ($p < .001$), and less use of the coping style behavioral disengagement ($p = .004$) were all significantly associated with week sixteen PTG. However, social support (both professional and personal) did not significantly contribute to the model. Analyses also indicated that while challenges to one's core beliefs/world assumptions predicted PTG, the nature of the beliefs (more positive or negative) were not associated with PTG, affirming that it is the examination of one's core beliefs/world assumptions that contributes to growth and not necessarily the content. Directions for future research and potential implications concerning possible strengths-based trainings and interventions for nurses are discussed.

# DEDICATION

To Lillian and Lyra, you are my reasons for everything.

# ACKNOWLEDGMENTS

First, I would like to thank Dr. Richard Tedeschi, whose calm demeanor, endless patience, and expertise was imperative for the completion of this project. Second, I would like to thank Dr. Suzanne Danhauer, whose advice and support over the years has been extremely valuable in both my personal and professional development. Third, I would like to thank Dr. Arnie Cann for his expertise, constructive feedback and patience. Dr. Tedeschi, Dr. Danhauer and Dr. Cann, because of all of you, this document has come to fruition and my gratitude is endless. I would also like to thank Dr. Judith Schwartz, Dr. Barry Ries, and Dr. Anne Eshelman, who each have supported me at different stages of my academic development and helped to shape who I have become professionally. I would also like to extend my heartfelt thanks to Mary Schurk, Phyllis Knight-Brown, Jean Bachman, Kelly Yager, Kelly Stephenson, and Kelli Triplett, all of whom were instrumental in the collection of the data for this project. To my family and friends, I am extremely blessed to have you in my life. To my parents, Roger and Pat Jesse, who supported and instilled in me the strength and resolution that I could do anything I set my mind to, I am eternally grateful. Thank you to my siblings Mark, Kim, and Becky for being some of my best friends and teaching me how to laugh at myself. To my lovely daughters Lillian and Lyra, you have become my greatest motivation. Last, but certainly not least, I would like to thank my husband Mark Schurk Jr. Words cannot express the love and gratitude I have for you and your unwavering support for me and my education. You have been my best friend through it all. Thank you everyone.

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# CHAPTER 1: INTRODUCTION

Nurses are an essential component in the provision of healthcare. They are the medical personnel who are likely to spend the most time with patients and perform varied roles including caregiver, educator, supportive counselor, and advocate. Given the nature of nursing, it is not surprising that numerous patient outcomes are directly associated with nursing-related care, including patient satisfaction (e.g., Wagner & Bear, 2009), length of hospital stays (e.g., Steiner et al., 2009), and patient mortality (e.g., Aiken, Clarke, Sloane, Lake, & Cheney, 2009).

The vast majority of research focusing on nurses examines their potential impact on patients, evaluation of interventions aimed at improving care of patients, negative outcomes associated with the profession (e.g., stress, burnout), or evaluation of interventions aimed at reducing such negative aspects. High levels of stress and other negative outcomes have been well-documented in the nursing literature. Stress is one of the most frequently cited reasons for nurses considering a change in profession (Flinkman, Laine, Leino-Kilpi, Hasselhorn, & Salanterä, 2008). Given the stressors that nurses face, including constant exposure to others' suffering as well as periodic threats to their own physical well-being, it is no surprise that nurses report high levels of stress, even to the extent of experiencing posttraumatic stress symptoms (Chan & Huak, 2004; Komachi, Kamibeppu, Nishi, & Matsuoka, 2012; Laposa, Alden, & Fullerton, 2003; P. Wu et al., 2009).

While nursing is considered a challenging and difficult profession, the primary

reason nurses choose it appears to be altruistic motivations (Bamber & McMahon, 2008; Gillis, Jackson, & Beiswanger, 2004). In other words, they become nurses to help other people. If nurses choose their profession to help others, then do they continue to derive some benefit from their occupational choice? For that matter, given the extent of stressors some nurses experience; do nurses also experience personal growth?

### 1.1 Posttraumatic Growth

Posttraumatic growth (PTG) is a relatively new term within the field of positive psychology and is defined as significant positive change which results from the struggle with a major life crisis(es) or challenge(s) (Calhoun, Cann, & Tedeschi, 2010; Calhoun & Tedeschi, 2006; Tedeschi & Calhoun, 2004). While terms for similar constructs have been introduced into the literature, for example stress-related growth (Park, Cohen, & Murch, 1996) or benefit finding (Tomich & Helgeson, 2004), PTG has been the most widely used. As will be discussed below, the growing body of research regarding internal/individual (e.g., coping styles, world assumptions) and external factors (e.g., social support) that can contribute in the development of PTG has shown some interesting, but also inconsistent, patterns. In order to better understand how these factors may or may not shape potential outcomes across populations (including nurses), particularly PTG, these factors need to be assessed prior to significant events so we can look at how they may shape the individual's response(s) over time (prospectively, longitudinally). Assessing prior to an event is difficult when considering that we cannot predict most significant negative events or traumas. Nurses provide an ideal population to implement a methodologically sound study on the development of PTG given their predictable professional experiences that can include psychological trauma.

## 1.2 Purpose of the Current Study

The purpose of this study was to expand on previous literature on posttraumatic growth (PTG) by evaluating a population of newly graduated and recently hired nurses. Specifically, this study attempted to determine whether and to what extent newly graduated nurses in three different states experienced PTG due to their experiences within their profession. Also, this study aimed to explore the relationship between schemas/beliefs and potential PTG and general well-being. Lastly, this study examined how nurses' coping styles and perceived social support influenced schemas/beliefs, PTG, and general well-being.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Stress

Stress is a natural part of human life. Lazarus (1984) defines stress as a "particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering well-being" (Lazarus, 1984, p. 376). Based upon this definition, a person's perception or appraisal of an event is integral to his/her response to the event. Horowitz (1985, 2011) adds that while there are general response tendencies, stress responses vary by the characteristics of the individual (e.g., availability of social support, coping styles) and aspects of the stressful event. Following a significantly stressful event, a person may enter a period of vacillation between repetitions of thoughts and a form of denial or avoidance of thoughts associated with the event (Horowitz, 2011). Both Janoff-Bulman (1989, 1992) and Horowitz (1985, 2011) affirm that what makes an event stressful is the disruption to a person's schemas or beliefs about the world. Everyday stressors, such as traffic or a rude person, are not likely to change these overall schemas which together compose a person's assumptive world (Janoff-Bulman, 1989, 1992). When something more significant (such as a trauma) occurs, these schemas are challenged and the mind attempts to assimilate, both consciously and subconsciously, this new information (e.g., the world really is not as safe as previously thought) into previously held schemas in order to restore equilibrium (Horowitz, 1985, 2011; Janoff-Bulman, 1989, 1992). The chronic nature of significant stressors for certain populations, such as nurses, appear to have potentially deleterious

effects on nurses, but whether there are potential positive effects requires further empirical study.

## 2.2 Nursing Stress

It is widely accepted that the profession of nursing is a highly stressful one (Beletsioti-Stika & Scriven, 2006; Chang, Hancock, Johnson, Daly, & Jackson, 2005; Cooper & Mitchell, 1990; de Carvalho, Muller, de Carvalho, & de Souza Melo, 2005). Nurses experience a wide range of stressors from chronic daily stressors (e.g., workload) to traumatic stressors such as threats to their own life (e.g., exposure to toxic materials, accidental needle sticks). Environmental stressors can vary significantly depending upon the nurse's specialty (e.g., obstetrics versus the intensive care unit; Arafa, Nazel, Ibrahim, & Attia, 2003). McVicar (2003) reviewed the nursing literature and reported six main themes in nursing-related stressors including: (1) workload; (2) professional conflict; (3) leadership/management issues; (4) shift-work; (5) lack of reward; and (6) emotional demands of caring. Workload and death and dying (when nurses are regularly exposed to them) are frequently the top rated stressors for nurses (Lambert et al., 2004; Laranjeira, 2012; Qiao, Li, & Hu, 2011).

There is a considerable body of research on the potentially negative effects of working in a helping profession that works closely with human suffering, such as nursing. Terms such as vicarious traumatization (McCann & Pearlman, 1990), compassion fatigue (Figley, 1995a, 1995b), secondary traumatic stress (Stamm, 1996), traumatic counter-transference (Herman, 1992), and burnout (Maslach, 1984; Maslach & Jackson, 1981) have been extensively studied. These terms have frequently been used interchangeably (Collins & Long, 2003), and while they are related, research shows they

are empirically separate constructs (S. R. Jenkins & Baird, 2002; Meadors, Lamson, Swanson, White, & Sira, 2009). These concepts have been associated with a myriad of negative outcomes such as reduced job satisfaction or negative feelings towards one's job (Duxbury, Armstrong, Drew, & Henly, 1984; C. Healy & McKay, 1999; J. Jenkins & Ostchega, 1986), consideration of changing to another job or profession (Coomber & Barriball, 2007; Estryn-Béhar et al., 2007), depressive symptoms (Bellani et al., 1996), gastrointestinal disorders (Michie & Cockcroft, 1996), and an increased risk for cardiovascular disease (Heslop, Smith, Metcalfe, Macleod, & Hart, 2002). There is also evidence to suggest that, in certain cases, the nature of trauma in nursing may be significant or substantial enough to cause the development of posttraumatic stress symptoms or Posttraumatic Stress Disorder (PTSD) in nurses (Chan & Huak, 2004; Komachi et al., 2012; Laposa et al., 2003; P. Wu et al., 2009).

Also, nurses commonly report they enter the field of nursing to help people (Bamber & McMahon, 2008; Gillis et al., 2004), suggesting some potential schemas composed of altruistic motivations. However, how pre-existing beliefs or underlying cognitions or schemas influence stress in nurses has not been sufficiently examined. Lastly, a potential outcome that has only begun to be investigated is the potential for personal growth or benefit from working in such a potentially high-stress environment.

### 2.3 World Assumptions

Based upon cognitive theory (Janoff-Bulman, 1989, 1992), people have basic beliefs or assumptions about the nature of the world. These beliefs are not necessarily in the rational or conscious mind, but serve as a type of protection from exterior stimuli that may be frightening or intimidating. Over the course of daily life, these schemas do not

change significantly. Through interactions with other people and the world, small modifications may be made but the overarching themes remain consistent (Janoff-Bulman, 2006). When a person encounters an extremely stressful event, successful processing requires integration of event-related information into the beliefs or assumptions about the world that the person has developed (Linley & Joseph, 2004). Specifically, based upon Janoff-Bulman's theory (1989, 1992) people hold onto basic beliefs that normally go unchallenged in their daily lives. These beliefs fall under the constructs of a benevolent world, meaningfulness in the world, and the worthiness of self (Janoff-Bulman, 1989, 1992).

Belief in a benevolent world encompasses the notion that the world is, overall, a good place and people are generally capable of being 'good.' At the forefront of a person's cognitions is the 'rational' mind, where a person may think and state that (s)he is aware that difficult things happen to people and could happen to them. However, if something were to actually happen to them, such as a traumatic stressor, they may wonder why. Meaningfulness in the world is the belief that the world has an order to it and there is some sense to that order (Janoff-Bulman & Frieze, 1983). This belief is further divided into three assumptions regarding potential outcomes for oneself and the world: justice, controllability, and chance. Justice is the basic assumption that bad things do not happen to good people and that the world is a 'just place.' Controllability is the assumption that people have some level of control over what happens to them. If people behave according to appropriate social norms, are careful, and are generally good people, then bad things should not happen to them. Lastly, the concept of chance is predominantly counter to justice and controllability, in that the assumption of chance

equates with the belief that some events are completely random. The third main assumption is the worthiness of self, which is the individual's perception of his or her own worth within the world. Worthiness of self can be further divided into three more basic assumptions: (1) the belief that one's self-worth will contribute to positive outcomes for the individual; (2) the belief that the individual can perform behaviors in efforts to prevent negative outcomes (not necessarily related to the actual outcomes); and (3) luck (Janoff-Bulman, 1989). The overarching three factors (i.e., benevolence, meaningfulness, worthiness of self) provide a clear structure (A. Cann, personal communication, September 5, 2009) and are consistently reported in other, similar theoretical constructs across the literature (Cason, Resick, & Weaver, 2002).

These three main assumptions about the world are frequently adaptive in that they allow people, through their cognitive processes, to protect themselves from threatening stimuli in their environment. For example, when someone hears about a mugging, that person may think the victim of the mugging was in the wrong place at the wrong time (meaningfulness of the world) as opposed to feeling for the victim and potentially becoming overwhelmed by fear of the possibility of being mugged. Of course, as Janoff-Bulman and Frieze (1983) outline, just as easily, these assumptions can be maladaptive if they are too extreme and cause the person not to perform preventive behaviors such as wearing a seat belt or avoiding drinking and driving.

Research on schemas and the assumptive world indicates that individuals who have experienced a significant loss or trauma may be more likely to report more negative views of the world (Jeavons, Greenwood, & de L. Horne, 2000; Lindeman, Saari, Verkasalo, & Prytz, 1996; Pyevich, Newman, & Daleiden, 2003; Rodríguez-Muñoz,

Moreno-Jiménez, Vergel, & Hernández, 2010). This research also suggests that individuals with less-positive schemas of the world are more likely to experience negative outcomes following a trauma or significant loss, such as greater anxiety (Grills-Taquechel, Littleton, & Axsom, 2011), greater risk for posttraumatic stress symptomatology (Bödvarsdóttir & Elklit, 2004; Bryant & Guthrie, 2005; Matthews & Marwit, 2003), or a greater grief response (Matthews & Marwit, 2003; Schwartzberg & Janoff-Bulman, 1991). Based upon this literature, when dealing with a substantial loss or threat, a person's assumptive world plays an important role in the reaction and adjustment to the loss. However, this research is predominantly retrospective and cross-sectional in nature, making it difficult to determine causal relationships.

Few studies have specifically examined schemas in those who work within the medical and disaster helping professions. Bamber and McMahon (2008) examined schemas, potential burnout, and psychological and physical health of doctors, nurses, health service managers, information technology (IT) staff, and clinical psychologists. Their findings suggest that individuals who reported more rigid, extreme schemas (i.e., were more resistant to change, continued use of ineffective coping strategies) were more likely to have more sick days and report burnout, anxiety, social dysfunction, depressive symptoms, and higher levels of somatic complaints than those who reported more fluid, less extreme schemas (Bamber & McMahon, 2008).

Galloucis, Silverman, and Francek (2000) assessed paramedics in rural and urban areas for both non-work and work-related traumatic events, schemas, and perceived social support. Paramedics in this study reported a range of personal and professional traumas as well as high levels of beliefs of vulnerability to harm in others. When the

paramedics reported significant, more recently occurring events/traumas, they were also more likely to report more negative schemas. However, perceived support appeared to buffer the disruptions in schemas, meaning that those paramedics who reported high levels of work and non-work related social support also reported more positive schemas of themselves, others, and the world (Galloucis, Silverman, & Francek, 2000). Galloucis, Silverman and Francek suggested that further research was warranted to more closely examine the influence of social support on schemas within the context of significant events. Given these two studies, it would appear that within medical and disaster helping professions, when schemas are rigid or extreme, responders may have greater difficulty following significant events. However, further research is needed to evaluate whether social support factors buffer the effects of significant events on schemas.

Walsh and Buchanan (2011) performed a qualitative study on acute care nurses exploring how observing patients' traumas and suffering affected the nurses. Five themes were produced including shock and prolonged witnessing of suffering, long-term effects on the nurses, distancing as a coping strategy, feelings of guilt and helplessness and dissonance in core beliefs about themselves. This last theme reflected that over time the nurses, due to their experiences with patient suffering, began to perceive a change in their 'sense of self' and what they had previously believed they were capable of accomplishing which created distress. Interestingly, they displayed the insight that from this distress and cognitive struggle they also experienced benefits including learning more effective coping strategies, how to live a more balanced life, and a new perspective regarding nursing (Walsh & Buchanan, 2011). While these studies are unique in their assessment of schemas in a helping profession, their findings are limited due to their methodology. As

the first two were cross-sectional in nature, there is no way to determine directionality of the relationships. While Walsh and Buchanan (2011) provide a starting point for how experiencing disruptions in core beliefs could potentially lead to PTG particularly in nurses, they utilized a very small sample of nurses making the findings difficult to generalize.

The empirical question remains as to the extent of change in the assumptive world in the aftermath of trauma and how different degrees of change impact well-being and potential PTG. An important aspect of the theory of the assumptive world is that while these schemas are not static, normal changes that occur are typically gradual and incremental. However, when a significant trauma occurs, one's prior inner representations are no longer capable of providing adequate understanding of the events experienced and therefore require rapid revision (Janoff-Bulman, 1989, 1992). Bryant and Guthrie (2005) assessed trainee firefighters for potential maladaptive cognitive appraisals during their training and then again a mean of 19 months after they had begun active firefighting duty. They found that negative views of oneself and one's capabilities significantly predicted the development of posttraumatic stress symptoms at the second assessment. The authors did not report whether they evaluated changes in cognitive appraisals and/or their outcomes (Bryant & Guthrie, 2005). However, the study lends credence to the importance of assumptive world beliefs and their impact on outcomes following significant events.

Tedeschi and Calhoun (2004) suggest that disruptions to the assumptive world are what set the stage for the potential PTG that some individuals report following a significant stressor. Specifically, PTG does not occur due to the trauma itself, but more

from the struggle and re-calibration of the individual's assumptive world following the trauma (Tedeschi & Calhoun, 2004). In fact, Janoff-Bulman (2006) equates the concept of personal growth following an extremely stressful event to 'expansions and developments' in one's underlying assumptive world/beliefs. She suggests that through the experience of a traumatic event, an individual's assumptive world does not necessarily become more positive, but instead may become more fluid and complex (Janoff-Bulman, 2006). To date, there is a sparse but growing body of research evaluating the relationship among the content of the assumptive world, the evaluation or examination of one's assumptive world, and the potential for PTG.

Engelkemeyer and Marwit (2008) assessed parents of children who died, ranging from one month to 12 years post loss, on their current world assumptions and PTG. Their findings suggested that those parents who perceived themselves to be worthwhile, good, moral and lucky, despite the world being a random place, were more likely to report PTG (Engelkemeyer & Marwit, 2008). Three recent studies explored the relationship between experiencing a significant stress/trauma within the past two to three years, examination of one's core beliefs or assumptions (not the content of the beliefs), and PTG in samples of undergraduate students (Cann, Calhoun, Tedeschi, & Solomon, 2010; Lindstrom, Cann, Calhoun, & Tedeschi, 2011; Triplett, Tedeschi, Cann, Calhoun, & Reeve, 2012). All three of these studies found strong relationships between the examination of core beliefs or assumptions and the subsequent development of PTG. However, given their cross-sectional designs, further empirical evaluation using longitudinal methodology is warranted to more fully examine the relationship between perceived change in core

beliefs or world assumptions, longitudinal change in core beliefs or world assumptions, and the development of PTG.

## 2.4 Posttraumatic Growth

PTG is a multidimensional construct defined as the occurrence of positive psychological changes in the aftermath of a traumatic event. Calhoun and Tedeschi (2006) outline that some people who experience traumatic events report PTG in one or more of five, empirically validated (e.g., Taku, Cann, Calhoun, & Tedeschi, 2008), ways: relating to others, a recognition of personal strength, new possibilities in life, greater appreciation of life, and spiritual change (Tedeschi & Calhoun, 1996).

The domain of relating to others involves a new or strengthened sense of compassion, intimacy, and closeness. Basically, people feel closer to others and a greater sense of compassion for those who have experienced traumas in their lives (Tedeschi & Calhoun, 2004). Greater perceived personal strength is a paradoxical area for PTG, as the individual reports greater perceived strength but may also recognize a greater sense of vulnerability. Some people report a realization of new possibilities such as the potential for a new career or other activities. For example, a person may go back to school for a new career or begin volunteering with a group that helps people who have gone through similar experiences. Another area of PTG is a greater appreciation for life. Frequently, people will report becoming more aware and appreciative of family and friends, may ‘stop and smell the roses’ more often, and may become less concerned with extrinsic priorities such as making money (Calhoun & Tedeschi, 2006). The final domain of PTG is an increased or improved spirituality or understanding of existential questions. The majority of research on this particular domain has predominantly been on Western

religions and, as such, the particular content of this area has been focused on the individual's feeling of increased closeness with their (monotheistic) God (Calhoun & Tedeschi, 2006).

PTG has been reported in a wide range of traumas including violent acts such as war or terrorism (e.g., Erbes et al., 2005; Hall et al., 2008), significant personal losses such as the death of a loved one (e.g., Davis, Wohl, & Verberg, 2007; Riley, LaMontagne, Hepworth, & Murphy, 2007), and serious medical conditions such as HIV/AIDS, cancer, and heart disease (e.g., Bellizzi, 2004; Milam, 2004, 2006; Morrill et al., 2008; Mystakidou, Tsilika, Parpa, Galanos, & Vlahos, 2008; Mystakidou, Tsilika, Parpa, Kyriakopoulos, et al., 2008; Petrie, Buick, Weinman, & Booth, 1999). While there is a growing body of literature on the development of PTG, research has begun to emerge on the potential for PTG from work-related events. Paton (2006) states that:

> Given the nature of their role, the careers of protective service (e.g., law enforcement, fire and rescue services), emergency and humanitarian aid (e.g., medical and mental health, Red Cross), and military professionals are regularly punctuated by exposure to emergencies and disasters. To assume that exposure to the adverse events encountered in the course of performing their professional role produces only deficit or pathological outcomes ignores an important reality (Paton, 2006, p. 226).

More recently, the term "professional posttraumatic growth" has been introduced into the literature to define this phenomenon (Bauwens & Tosone, 2010).

To date, the majority of research on PTG has been cross-sectional in nature. Several factors have appeared to consistently be associated with PTG, namely certain sociodemographic (e.g., female gender, younger age), trauma related (e.g., trauma related distress, perceived extent of the trauma, time since the event), and psychosocial variables (e.g., higher levels of perceived social support, certain coping styles) (Bellizzi & Blank, 2006; Cordova et al., 2007; Harms & Talbot, 2007; J. Jenkins & Ostchega, 1986; Lechner et al., 2003; Manne et al., 2004; Salsman, Segerstrom, Brechting, Carlson, & Andrykowski, 2009; Vishnevsky, Cann, Calhoun, Tedeschi, & Demakis, 2010; Wilson & Boden, 2008). However, some variables have a more complex relationship with the development of PTG than initially thought. For example, while perceived threat and related distress associated with the event appears to consistently be associated with the development of PTG (J. Jenkins & Ostchega, 1986; Wild & Paivio, 2003), levels of trauma exposure and posttraumatic stress symptoms have displayed inconsistent results with regard to potential PTG showing both significant associations with development of PTG (e.g., Cadell, Regehr, & Hemsworth, 2003; Lev-Wiesel & Amir, 2003; Lev-Wiesel, Amir, & Besser, 2005; Updegraff & Marshall, 2005) and no associations with the development of PTG (e.g., Cordova, Cunningham, Carlson, & Andrykowski, 2001; Cordova et al., 2007; Salsman et al., 2009).

However, differentiating between the nature of the stressor, the distress at the time of the event, time since the event, potential moderators, and the subsequent anxiety/distress following the event's potential impact on the development of PTG is important to understand. The relationship between PTG and distress may be a function of timing of assessment of distress relative to PTG, such that there is a positive relationship

early on and a negative relationship later as PTG provides a route to relief of suffering. There is theoretical and empirical support to suggest that the extent of the trauma and the development of posttraumatic stress symptomatology is likely an inverted-U relationship with PTG. In other words, there may be an 'optimal' amount of a significant stressor/trauma response involved in the development of PTG where too little of a threat does not stimulate PTG but too much hinders its development by potentially overwhelming the individual's resources (Kleim & Ehlers, 2009; Kunst, 2010; McCaslin et al., 2009; McLean et al., 2013; Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003).

Janoff-Bulman (2006) argues that what makes an event traumatic is not the threat to one's physical self, environment, or other people, but rather the "internal disorganization and disintegration that follows from psychological unpreparedness" (Janoff-Bulman, 2006, p. 83). Tedeschi and Calhoun (2004) use the analogy of an earthquake for trauma, where the 'seismicity' of the event is a measure of how much the event is disruptive to the individual. With this analogy, the extent of how disruptive or how greatly the event 'shakes' the person could be read like a seismometer where the greater the 'shaking,' the more the needle moves in the extreme direction (Tedeschi & Calhoun, 2004). However, for nurses, the hypothesis is that the needle showing levels of disruption, or how greatly the events shake the nurse, is less extreme but on a more continuous basis. So for the individual who experiences a trauma, the needle spikes high once (single, discrete events) and then the person works to re-establish homeostasis, whereas for nurses the needle may not spike as high but continues to spike at lower levels but continuously over time.

Below is the most current, full conceptual model of PTG (Figure 1, reproduced from Calhoun et al., 2010). As the empirical body of research regarding PTG grows, so too does the conceptual model of the processes of PTG. For example, Tedeschi and Calhoun (2004) theoretically suggested the potential importance of people's assumptive worlds or schemas in the theoretical development of PTG, but there was minimal empirical evidence to support this relationship until relatively recently (e.g., Cann, Calhoun, Tedeschi, & Solomon, 2010; Danhauer et al., 2012; Lindstrom et al., 2011; Triplett et al., 2012). There has also been increased discussion regarding some of the limitations of the research regarding PTG, namely that there have been inconsistent findings, some of which likely stem from methodological limitations. Based on this conceptual model, the areas of interest for this study include aspects of the person pre-trauma (world assumptions, coping style, perceived supports, and general well-being), seismicity or distress associated with the event(s), subsequent challenges to beliefs, reduction of emotional distress through coping mechanisms, provision of opportunities for disclosure and cognitive processing through social support, subsequent schema change and ultimate potential for PTG and changes in subjective well-being (Figure 2, proposed conceptual model for this study).

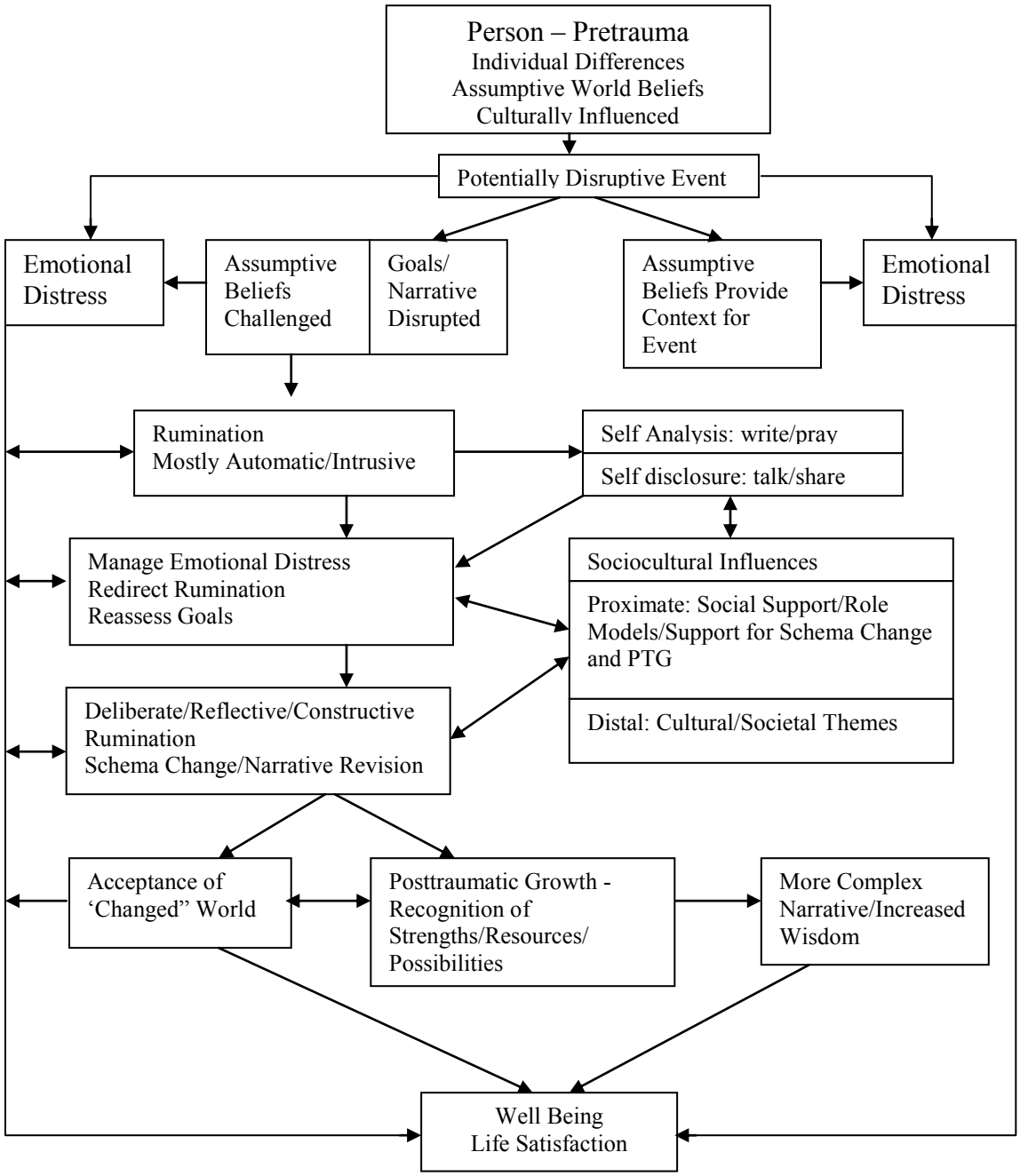


Figure 1

A Model of Posttraumatic Growth (reproduced from Calhoun et al., 2010).

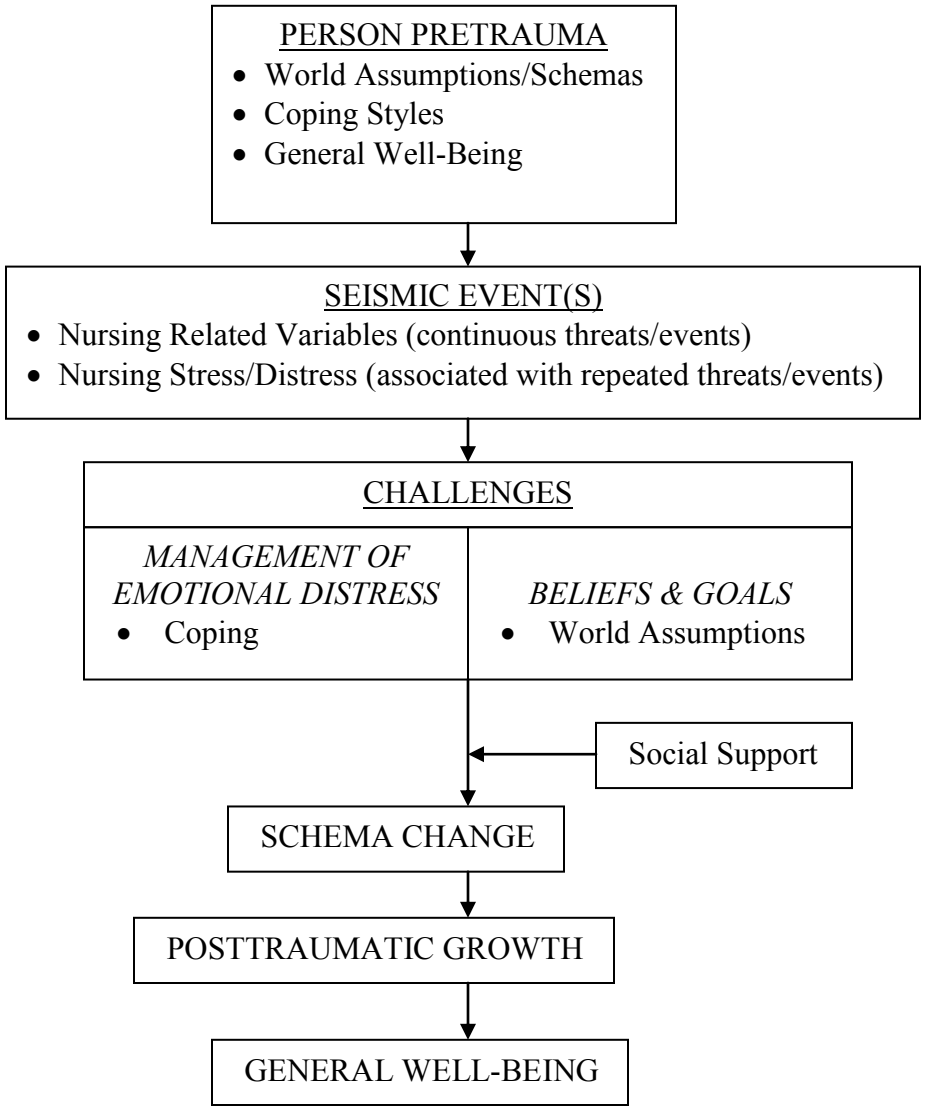


Figure 2

Proposed Model

## 2.5 Vicarious and Secondary Trauma and PTG

Related to the above question regarding the level of a stressor sufficient to develop PTG is the potential for secondary or vicarious posttraumatic growth. Can contact with patients experiencing the trauma of serious illness or injury lead nurses to experience or develop PTG vicariously? Psychotherapists have reported that they experience secondary or vicarious traumatic stress (Brady, Guy, Poelstra, & Brokaw, 1999; Linley & Joseph, 2007; Sabin-Farrell & Turpin, 2003) as well as secondary posttraumatic growth (Arnold, Calhoun, Tedeschi, & Cann, 2005; Bauwens & Tosone, 2010; Brockhouse, Msetfi, Cohen, & Joseph, 2011). Within the general population, just having a close interpersonal relationship with someone who directly experienced a traumatic event can lead to a PTG-related experience (Ackroyd et al., 2011; Loiselle, Devine, Reed-Knight, & Blount, 2011; Moore et al., 2011; Şenol-Durak & Ayvaşik, 2010; Thombre, Sherman, & Simonton, 2010; Val & Linley, 2006). As nurses frequently develop close relationships with their patients and cite the development of these relationships to be important to their job satisfaction (Grunfeld et al., 2005), it is reasonable to expect that they would show similar reactions to others with interpersonal relationships with trauma survivors.

However, whether nurses and other healthcare workers who work with people who suffer experience vicarious PTG or ‘primary’ PTG is debatable. Healthcare professionals are potentially exposed to multiple types of traumas including what would be considered ‘primary’ traumas such as direct exposure to life threatening events (e.g., exposure to toxic chemicals), an intermediary but still primary trauma of direct involvement of critical incidents (e.g., resuscitation and intubation of a severely injured

individual), or secondary or vicarious traumatic exposure via the normal result of interpersonal contact with patients and patients' family/supports (e.g., hearing a patient talk about their traumatic experience) (Galloucis et al., 2000). Therefore, it is arguable, based upon the nature of the stressor, that nurses could experience both 'primary' and 'secondary' PTG. Especially considering the literature which indicates that healthcare workers have been shown to develop high levels of anxiety (e.g., Kerasiotis & Motta, 2004) and even Posttraumatic Stress Disorder (PTSD) (e.g., Komachi et al., 2012; North et al., 2002), it appears that these professions have the potential for a substantial impact on individuals.

There have been a handful of studies on PTG that have attempted to specifically assess emergency care responders (e.g., firefighters). However, when assessing participants, some of these studies assessed for any trauma experienced (not necessarily related to work) whereas other studies have focused on work-related traumatic events. Both will be discussed.

Linley and Joseph (2006) assessed disaster responders at two time points, six months apart, for both positive and negative aspects of their experience with disaster work. These workers had been called out to respond to a disaster within the last 18 months. They found that at the time of the first assessment, participants who reported greater levels of PTG also reported greater levels of fear, hopelessness, horror, and intrusive thoughts about their disaster work. This study also showed that the Posttraumatic Growth Inventory (PTGI) has excellent test-retest correlations, which gives support to the notion that PTG appears to develop relatively early and then may show a period of stability (Linley & Joseph, 2006).

Other studies with similar populations have shown similar levels of PTG (Norlander, Von Schedvin, & Archer, 2005). Shakespeare-Finch, Gow, and Smith (2005) evaluated personality, coping, and PTG in ambulance drivers in Australia. Ambulance drivers were asked to respond based upon their most significant traumatic stressor, regardless of whether it was professional or personal. Those who responded based upon earlier personal traumas indicated more PTG than those who had experienced only work-related traumas. Additional findings indicated that, overall, ambulance drivers reported PTG and that adaptive coping and extroversion (to a lesser extent) significantly contributed to the development of PTG (Shakespeare-Finch, Gow, & Smith, 2005).

Several studies have assessed hospital caregivers with responsibilities similar to those proposed in this study. A strength of these studies is that they assess experiences directly related to the participant's work. Lev-Wiesel, Goldblatt, Eisikovitz, and Admi (2009) evaluated social workers and nurses during the 2006 Israel-Hezbollah war, a 34 day period where multiple rockets were fired in and around northern Israel putting the entire population at risk. Two months following the cease-fire in Haifa, nurses from a large university hospital and social workers employed by the welfare department were evaluated for possible PTG. Half of the nurses reported being directly exposed to war-related traumatic events, and 64% reported working directly with war-related trauma survivors during the war. Interestingly, the authors reported they did not find any differences between the nurses who reported direct versus indirect war-related trauma exposure on peritraumatic dissociation, posttraumatic stress symptoms, vicarious traumatization, or PTG. However, the nurses did report significantly higher levels of PTG than the social workers. The authors suggested that a possible reason for these findings

was related to the professional role of a nurse in that even in times of trauma what was required of them was more clearly defined than the social workers. Namely that during war there is often a breakdown of social and community processes, whereas the demands for provision of medical interventions remains consistent (Lev-Wiesel, Goldblatt, Eisikovits, & Admi, 2009). Even in the context of war, aspects of nursing appear to have the potential to uniquely contribute to PTG.

To explore whether the potential for growth is unique to nursing, Shiri, Wexler, Alkalay, Meiner, and Kreitler (2008b) assessed physicians, psychotherapists, and nurses who were treating individuals exposed to politically motivated violence (PMV), which included treating individuals injured due to explosive devises in close spaces (such as suicide bombers on buses). The healthcare workers who were assessed in this study were not exposed to the PMV except through the individuals they were treating. While overall levels of PTG were not exceptionally high, nurses reported significantly higher levels of PTG than both psychotherapists and physicians (Shiri, Wexler, Alkalay, Meiner, & Kreitler, 2008). While the authors did not account for amount of exposure that the healthcare providers had to the PMV patients being treated, the above studies lends credence to the notion that nursing is a unique profession with the potential for both significant stress and personal growth. Nurses can become highly involved in patients' lives and are likely to develop closer relationships with their patients over prolonged periods of time than others within the healthcare field. They may be less likely to be as prepared for the emotional demands of their work as psychotherapists often are, and as such, the cognitive disruption necessary for PTG may be more substantial in nurses than in psychotherapists. Physicians tend to spend less time directly with their patients, a

factor that may account for why physicians report less PTG compared to others in the healthcare field. While not diminishing any healthcare providers' work with their patients, it appears that nursing is a unique experience closely involved with the experience of patients.

Taubman-Ben-Ari and Weintroub (2008) assessed physicians and nurses in the pediatric intensive care unit (PICU) for level of exposure to death, secondary trauma, professional self-esteem, and PTG. Nurses spent significantly more time in direct contact with their patients and reported more deaths during their shifts than physicians. Nurses reported both significantly higher levels of secondary traumatic stress and greater PTG than the physicians surveyed. While the results of this study indicated that level of exposure to death in the workplace within the past six months was not associated with PTG, the results of the study did suggest that those individuals who had fewer patients die within the past six months indicated significantly more spiritual growth than those who had more patient deaths. Perhaps the most interesting result of the study was that those individuals, who reported low levels of professional self-esteem while reporting high levels of secondary traumatization, also reported greater PTG. However, those individuals with high professional self-esteem did not display this relationship (Taubman-Ben-Ari & Weintroub, 2008). The authors concluded that "further investigation is needed to identify factors that might moderate the work-related stress of nurses and promote their experience of both growth and meaning in life" (Taubman-Ben-Ari & Weintroub, 2008, p. 640). While these findings provide a valuable insight into the potential for PTG within the nursing field, a significant limitation is its cross-sectional nature. In particular, there was a substantial range in the number of years in the field held by the participants (1-35

years for physicians and 1-36 years for nurses). Therefore, longitudinal-style assessment of nurses is warranted.

## 2.6 Coping

An essential component to the development of PTG is an individual's coping style. Also, for nurses, there is evidence to suggest that a nurse's style of coping may contribute more to individual outcomes than other factors (both internal and external such as organizational factors) (e.g., Mark & Smith, 2012). Coping is a broad term applied to a wide range of behaviors. Researchers have struggled to specifically define coping and its constructs for years. Skinner, Edge, Altman, and Sherwood (2003) outlined a number of difficulties associated with studying coping including its operational definition. In summary, they stated that coping is a complex area that should not be studied as a unitary construct. Instead, they suggest that each general coping approach should be viewed on its own (e.g., seeking of social support, positive reframing) and the interested researcher should identify the specific areas they are interested in and assess accordingly. Skinner et al. also outlined the likelihood that certain types of coping would be more "adaptive", or associated with better outcomes, than other types of coping. For example, they outlined that behavioral disengagement was less likely to be associated with better outcomes than active coping (Skinner, Edge, Altman, & Sherwood, 2003). Therefore, as will be more thoroughly outlined below, this study will examine separate components of coping in nurses.

Janoff-Bulman (1992) illustrates that coping is a strategic, but not necessarily conscious, effort to reconstruct a 'view of reality' when information presents itself which is threatening or inconsistent with cognitive assumptions (Janoff-Bulman, 1992). In other

words, coping is one way that people integrate new information into existing schemas. Research has provided support for the influence of world assumptions and subsequent coping mechanisms on the outcomes experienced by trauma survivors. Specifically, Goldenberg and Matheson (2005) assessed trauma history, world assumptions, coping styles, and potential posttraumatic symptomatology in undergraduate students. Individuals who reported more negative world assumptions also were more likely to report passive coping strategies (self-blame, avoidance, and wishful thinking) and more posttraumatic symptomatology. In fact, their findings suggested that passive coping styles mediated the relationship between world assumptions and the development of posttraumatic symptomatology and were less likely to influence world assumptions than the other way around. Instead, existing negative world assumptions may limit individuals' ability to cope effectively (Goldenberg & Matheson, 2005). Another study assessed disaster rescue workers one week and eight months post-rescue from the sinking of a car ferry in the Northern Baltic Sea. Findings suggested that world views 'improved' over time (Lindeman et al., 1996). As these two studies indicate, world assumptions are both stable over time and can 'improve' given a traumatic event. As one study assessed undergraduates on a wide range of traumas (Goldenberg & Matheson, 2005) whereas the other study assessed rescue workers longitudinally (Lindeman et al., 1996), findings suggest that longitudinal research and collection of data as close to the actual event as possible are optimal research strategies in this area.

The individual's style of coping appears to play an integral role in the development of PTG. For example, active coping (Bellizzi & Blank, 2006; Bishop et al., 2007; Butler et al., 2005; Morris, Shakespeare-Finch, & Scott, 2007; Schroevers & Teo,

2008; Wild & Paivio, 2003) and positive reframing (Butler et al., 2005; Low, Stanton, Thompson, Kwan, & Ganz, 2006; Morris et al., 2007; Schroevers & Teo, 2008; Thornton & Perez, 2006; Widows, Jacobsen, Booth-Jones, & Fields, 2005) have been strongly and consistently associated with the development of PTG. Recently, however, conflicting research has emerged suggesting that PTG may be a coping mechanism for managing distress rather than reflective of actual PTG (Frazier et al., 2009; Gunty et al., 2011) whereas other research provides support that coping styles are predictive of PTG and ultimately separate constructs (Boals & Schuettler, 2011). Further research using prospective, longitudinal designs evaluating these constructs is needed to further define this relationship.

Planning, positive reappraisal, and seeking social support have been rated by nurses as their most frequently used styles of coping (Bianchi, 2004; Hawkins, Howard, & Oyebode, 2007; Lambert et al., 2004; Xianyu & Lambert, 2006). Nurses who use these types of active coping strategies also report greater job satisfaction (Gellis, 2002). When nurses use more passive or avoidant coping styles, such as behavioral disengagement or denial, they also experience greater negative affect (Bowman & Stern, 1995; Lowe & Bennett, 2003), lower general health (Bowman & Stern, 1995), reduced job satisfaction (Burke & Greenglass, 2000; Gellis, 2002; Li & Lambert, 2008; Tyson, Pongruengphant, & Aggarwal, 2002), and greater job stress (Gellis, 2002; C. Healy & McKay, 2000; Tyson et al., 2002).

As nurses frequently endorse seeking social support as one of their most commonly used coping mechanisms (Bianchi, 2004; Hawkins et al., 2007; C. Healy & McKay, 2000; Lambert et al., 2004; LeSergent & Haney, 2005), this strategy is an

important area of interest. However, for this study, we will be focusing on the nurses' perceptions of social support rather than their actions in procuring support. As these are newly hired nurses, nurses are less likely to be aware of their new organizations' resources and therefore evaluation of pursuit of support within the organization would likely be convoluted with other factors (e.g., bureaucratic).

## 2.7 Social Support

For decades, researchers have attempted to define social support, a valuable, multidimensional concept important for study (Hupcey, 1998; Williams, Barclay, & Schmied, 2004). Williams, Barclay, and Schmied (2004) outlined multiple aspects of definitions of social support that have been prevalent within the literature such as satisfaction with support, perception of support, who provides the support, whether the impact of the support is considered positive or negative, and potential resources available. However, studying every aspect of social support in one research study is not realistic so researchers need to determine which aspects of social support are the most relevant (House, 1981). One conclusion following a review of social support literature was that researchers should take context into account (Williams et al., 2004). For this study, the focus will be on perceived social support (of family, friends, significant others, coworkers, and supervisors).

It appears that the vast majority of research on effects of social support on nurses has been outside of the United States (U.S.), particularly in countries with very different cultural norms and organizational factors from the U.S., such as Jordan (Hamaideh, Mrayyan, Mudallal, Faouri, & Khasawneh, 2008), Taiwan (Chu, Lee, & Hsu, 2006; Lu, Wang, & Liu, 2007), and China (S. Wu, Zhu, Wang, Wang, & Lan, 2007). Not

surprisingly, research evaluating differences between different cultures/countries, particularly those comparing eastern to western cultures, has demonstrated substantial differences in social support in the experience of nursing (AbuAlRub, 2006; Pal & Saksvik, 2008). This difference complicates interpretation of data from other cultures or countries when evaluating U.S. nurses and emphasizes the need for research evaluating the influence of perceived social support on nurses in the U.S.

What is known about perceived social support and nurses is similar to the larger, general body of perceived social support. Namely, greater perceived social support is associated with greater perceived job performance (AbuAlRub, 2004), satisfaction with supervisors (Noelker, Ejaz, Menne, & Jones, 2006), intrinsic work motivation (Tummers, van Merode, Landeweerd, & Candel, 2003), less job stress (AbuAlRub, 2004; Evans & Steptoe, 2001; Hillhouse & Adler, 1997), less exhaustion (Ben-Zur & Michael, 2007), lower levels of burnout (Baba, Galperin, & Lituchy, 1999; Hillhouse & Adler, 1997; R. Jenkins & Elliott, 2004; Marín & García-Ramírez, 2005), less consideration for another or other jobs (Skytt, Ljunggren, & Carlsson, 2007), better overall mental health (Arafa et al., 2003; Yang, Pan, & Yang, 2004), better self-reported physical health (Bradley & Cartwright, 2002), and reduced risk for minor psychiatric disorders (Yang et al., 2004). Much of this research either does not delineate the effects of different aspects of perceived social support (e.g., organizational versus personal) (e.g., Baba et al., 1999) or only examines one sub-component of perceived support (e.g., only examines co-worker support) (e.g., Ben-Zur & Michael, 2007; Tummers et al., 2003). When components of perceived support are evaluated, support from different sources have potentially different

effects on stress responses (Bradley & Cartwright, 2002) and subsequent PTG (Pietrzak et al., 2010).

Within the PTG literature, a recent meta-analysis indicated that seeking social support and perceived social support have only a moderate relationship with the development of PTG (Prati & Pietrantoni, 2009), but findings have varied depending upon the population studied, the assessment measure(s) utilized, and the areas of support assessed. For example, in breast cancer patients, perceived global support has both predicted (Bozo, Gündoğdu, & Büyükaşik-Çolak, 2009) and not predicted PTG (Cordova et al., 2001). In healthy populations, when aspects of perceived support are evaluated separately, findings suggest that in different trauma populations different aspects of support have different relationships with the development of PTG. For example, Lev-Wiesel and Amir (2003) assessed Holocaust child survivors for perceived social support from friends and family, but only the perceived social support of friends had a relationship with the development of PTG (Lev-Wiesel & Amir, 2003). Pietrzak et al. (2010) evaluated Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans and found that retrospective evaluation of perceived support from one's military unit at the time of deployment and related military leaders was associated with the development of PTG, whereas perceived support post-deployment from family, friends, coworkers, employers, and their community at large was not (Pietrzak et al., 2010). Clearly, when evaluating the potential relationship of perceived social support with the development of PTG, it would be beneficial for researchers to take into consideration which components of perceived support may influence PTG. For nurses, this would mean

evaluating professional and personal support to determine whether they contribute to PTG.

# CHAPTER 3: RESEARCH DESIGN AND METHODS

## 3.1 Study Hypotheses

Specific Aim #1: To determine whether, and to what extent, nurses will report some level of PTG and whether there is change over time.

Hypothesis 1. Newly licensed nurses will display significantly increased PTG over time consistent with levels reported by other helping professions.

Specific Aim #2: To determine if nursing-specific stressors and other psychosocial variables (e.g., coping, perceived social support) predict the development of PTG in nurses.

Hypothesis 2a. Nurses who report more nursing-related stress (general and event specific), higher work-related perceived social support, and higher non-work related social support will report higher levels of PTG.

Hypothesis 2b. Nurses who report lower event-related stress associated with nursing events, more negative cognitive views about the world, experience less disruption to their cognitive beliefs about the world, and use less effective or "passive" coping mechanisms (e.g., substance use, behavioral disengagement) will report lower levels of PTG.

Specific Aim #3: To determine how nurses' cognitive assumptions are impacted by their experiences in nursing and whether social support and coping moderate the potential changes in or the examination of cognitive assumptions will influence the development of PTG and general well-being.

Hypothesis 3a. Nurses with more positive world assumptions at baseline will fare better than nurses with "more" positive world assumptions in follow-up assessments on PTG and general well-being.

Hypothesis 3b. Nurses who report greater change in basic assumptions will report better well-being and PTG than those who report less change in these assumptions.

Hypothesis 3c. Perceived social support and coping style will moderate the relationship between world assumptions and PTG and general well-being so that nurses with less positive world assumptions at baseline, when reporting high levels of perceived social support and adaptive coping styles, will indicate greater posttraumatic growth and well-being.

## 3.2 Design

To address the above hypotheses, a longitudinal, repeated measures design was used. Consented/enrolled participants completed baseline assessment forms (week 0 or T1), then assessments again eight (T2) and 16 weeks (T3) later. Timing of these measures was chosen in part because previous research has suggested that for one of the main outcome variables of interest, PTG, this interval of time is an adequate amount to develop PTG (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010).

## 3.3 Power and Sample Size Considerations

### Aims 1, 2, and 3

Since the primary questions in the hypotheses were based on detecting associations between continuous measures, the power for this study was based on detectable correlations. Power analyses indicated that assuming a large effect size ($f^2$ =

.35), with a power of .80, and an average of five predictors per model the study would need a minimum of 43 participants. To account for possible attrition, the initial proposed *N* for the study was 50.

### 3.4 Participants/Sites of Recruitment

The initial proposed sample included 50 newly licensed, newly graduated nurses recently hired at a large medical facility in a rural area in the Southeastern United States (Site A). However, due to difficulties with follow-up of consented nurses and an error in data collection resulting in 8 nurses being removed from the study, the total *N* was increased from 50 to 85 and two additional recruitment sites/sources of participants were added, one a large medical facility in an urban area in the Northern Midwest of the United States (Site B) and the other a large academic university in Midwest United States (Site C). Full Institutional Review Board (IRB) approval was attained prior to data collection across all three sources of participants. Also, site agreements were established between each site and the University of North Carolina Charlotte (UNCC) to ensure appropriate and legal data sharing.

### 3.5 Eligibility/Procedure

Inclusion/eligibility criteria were consistent across all three sites. Inclusion/eligibility criteria were: (1) adults ≥18 years of age; (2) received his/her license as a registered nurse and either a Bachelor of Science in Nursing (BSN) or an Associate's Degree in Nursing (ADN); (3) hired for the first time as a licensed registered nurse and started said employment within the past three weeks; (4) would have direct patient contact and be responsible for direct inpatient care; and (5) ability to understand and willingness to sign a written informed consent form.

Data collection at Site A occurred from June 2010 through December 2011, data collection at Site B and through Site C occurred from January 2012 to September 2012. The procedure for each site was slightly different. For both Site A and Site B, once an eligible nurse was hired at her/his respective hospital, the nurse coordinator would contact study personnel with a day and time during the nurse's new employee orientation when study personnel could approach the nurse for potential recruitment. At this time, study personnel approached the nurse, explained the nature of the study, outlined what participation would entail, and provided IRB-approved recruitment documents. At Site A, IRB approved documents included a recruitment letter from study personnel (see Appendix A: Site A Recruitment Letter) and consent form (see Appendix B: Site A IRB Approved Consent Form). At Site B, IRB approved documents included a recruitment letter from the Chief Nursing Officer (see Appendix C: Site B Recruitment Letter) and consent form (see Appendix D: Site B IRB Approved Consent Form). Eligible participants were given ample time to read/review the recruitment materials. All questions were answered by study personnel. Participants were given the option of consenting to participate in the study, deferring consent to a later time (but still within the eligibility window) so they could more thoroughly review the recruitment documents, or declining participation. For those who deferred consent, the contact information for study personnel was included in the recruitment materials if they determined they wanted to participate later. Eligible participants who agreed to participate were fully consented based upon the respective institution's IRB consenting policy. At Sites A and B, when nurse participants agreed to participate, the floor they worked on was recorded in a database (stored on an internal server, on password protected computers). When a

participant was due for T2 or T3, study personnel contacted the participant through his/her work-related email notifying them that they were due for a survey and place the survey in his/her work-mailbox in an envelope with the study's Principal Investigator's (PI) name/work address on the cover. The participant had the option of sending the survey back to the PI via interoffice mail or for study personnel to pick up at a designated time directly from the participant. Eligible participants recruited through Site C were not employed by Site C but were members of the Bachelor of Science of Nursing graduating class of December 2010. Eligible nurses from the graduating class were identified following full IRB approval from Site C, at which time the manager of Alumni Records and Development Systems provided study personnel with a comprehensive database of the recent graduates' names, Site C emails, personal emails, and last known phone numbers. From this database, all nurses were individually sent a recruitment email (see Appendix E: Site C Recruitment Email) explaining the study. The email also provided a link to a website (www.surveymonkey.com) which initially opened to the Site C consent form in electronic version (see Appendix F: Site C IRB Approved Electronic Consent Form). For tracking purposes, each individual email included a potential participant specific code that they could enter at the end of the first electronic page of the study to acknowledge consent. They were emailed the same code for T2 and T3 follow-ups (see Appendix G: Site C Email Notification of T2 and T3 Assessments) to correspond to each individual's data over time. If participants did not complete the T2 or T3 online survey within two weeks of being emailed notification, a reminder email was sent which again included the T2 or T3 assessment link and her/her study related individual code (see Appendix H: Site C T2 and T3 Reminder Emails). Participants were sent this reminder

email up to twice if they had not completed the survey. At Site A, participants who completed all three time points were given a $10 Visa gift card. There was no reimbursement for nurses at Sites B or C.

Regardless of site, to verify eligibility, the following several questions were included in baseline assessments: “Are you a newly licensed nurse?” and “Is this your first job as a newly licensed nurse?” Response options were “Yes” or “No.” If participants answered “Yes” to both questions, they were considered eligible and included in the study sample.

### 3.6 Assessment(s)

#### 3.6.1 Sociodemographic/Nursing Variables

Sociodemographic information was collected from each participant including age, gender, race/ethnicity, socioeconomic and marital status, number of children currently residing in the participant’s household and age(s) of the children, religious affiliation, and religious service attendance. Nursing related variables were collected from each participant including their specialty, unit/floor, and confirmation that they were recently licensed and this job was his/her first as a licensed nurse (See Appendix I: T1 Demographic and Nursing Specific Variables). At T2 and T3, nurses were asked to list the top three most difficult/stressful events that they had experienced at work over the past two months. They were also asked to rate these experiences from 0 (not at all difficult/stressful) to 10 (as difficult/stressful as you can imagine). These three ratings were summed for each time point with a potential range of 0 to 30 for an event-related stress score. They also reported, over the past two months, how many average hours per week, the typical shift schedule (i.e. 7am to 7pm, or 7pm to 7am), average number of

patients for whom they had primary responsibility, and approximate number of patients who died while under their care (see Appendix J: T2 and T3 Nursing-Specific Variables).

3.6.2 Instruments (see Appendix K: Assessment Measures)

3.6.2a Posttraumatic Growth

The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) is a 21-item scale that measures the degree of reported positive changes experienced in the struggle with major life crises or trauma. It includes five empirically-derived factors of PTG: Relating to Others, New Possibilities, Appreciation of Life, Personal Strength, and Spiritual Change. Relating to Others measures a strengthened sense of intimacy, compassion, and closeness with others. New Possibilities measures increased awareness for potential new opportunities in life (e.g., a new career). Appreciation of Life measures an increased awareness and appreciation for aspects of their life such as friends and family. Personal Strength measures greater perceived personal strength to manage difficult situations. Lastly, Spiritual Change measures an increased understanding of existential questions or improved spirituality. Responses are based upon a 6-point scale from 0 (*I did not experience this change as a result of my time as a nurse*) to 5 (*I experienced this change to a very great degree as a result of my time as a nurse*).

The scale and subscales are scored by summing responses to individual items, with higher scores indicating more PTG. Cronbach's alphas for the total score have been consistently reported in the high range from $\alpha = .91$ to .93 (Anderson & Lopez-Baez, 2008; Bates, Trajstman, & Jackson, 2004; Linley, Andrews, & Joseph, 2007; Michael & Snyder, 2005; Morris, Shakespeare-Finch, Rieck, & Newbery, 2005). The Cronbach's alpha for this study for the PTGI total score and subscales were adequate to good

respectively; PTGI Total score α = 0.82, Relating to Others α = .78, New Possibilities α = .79, Appreciation of Life α = .72, Personal Strength α = .77, and Spiritual Change α = .79. The PTGI has shown excellent test-retest reliability (Linley & Joseph, 2006).

3.6.2b Coping

The Brief COPE (Carver, 1997) is a 28-item measure designed to tap the way that people respond to stressful events. Based upon this scale, coping is divided 14 subscales. For this study, the nine subscales included were self-distraction, behavioral disengagement, denial, substance use, self-blame, venting, active coping, planning, and positive reframing (18 items total) based on the prior nursing and PTG literature (Bianchi, 2004; Hawkins et al., 2007; Lambert et al., 2004; Xianyu & Lambert, 2006). Self-distraction, also referred to as mental disengagement, involves potentially varied efforts of diversion to avoid attending to stress(ors). Behavioral disengagement is theoretically thought to occur when a negative outcome is expected and as such the individual reduces or eliminates efforts to handle the stress(ors) (Carver, Scheier, & Weintraub, 1989). Denial is the refusal to believe an event or stressor occurred. Substance use is turning to alcohol or other substances to attempt to suppress negative emotions associated with the stress(ors) (Carver, 1997; Carver et al., 1989). Self-blame is the tendency to "blame" or criticize oneself for the stress(ors) (Carver, 1997). Venting entails a component of focusing on the stress and voice whatever may be distressing or upsetting the individual (Carver, 1997; Carver et al., 1989). Active coping is the tendency to try to deal directly with the stress(ors) or its effects. Planning is also considered a form of active coping and is the tendency to think about what actions or steps to take to address/handle a problem or stress(or) (Carver et al., 1989). Lastly, positive reframing

involves efforts to find positives of the event or stress(or) or reinterpret aspects of the event/stress(or) as positive (Carver, 1997; Carver et al., 1989).

While there is a total score for the Brief COPE, it has not provided useful or consistent findings and therefore it is recommended to evaluate the specific styles of coping which are the most parsimonious with the objective of a study (Carver, 1997; Skinner et al., 2003). Responses are based upon a 4-point scale from 1 (*I usually don't do this at all*) to 4 (*I usually do this a lot*). The subscales are each based upon the summation of their respective items. The measure has shown reasonable Cronbach alphas, ranging from .50 for venting to .90 for substance use (Carver, 1997).

3.6.2c Examination of Core Beliefs

The Core Beliefs Inventory (CBI; Cann, Calhoun, Tedeschi, Kilmer, et al., 2010) is a 9-item measure of the degree of disruption to various aspects of the assumptive world (as previously described by Janoff-Bulman, 1992). Specifically, the CBI quantifies the degree to which the individual, going through a significant life experience, examines his/her core beliefs and assumptions about the world. Responses are based on a 6-point scale from 0 (*not at all*) to 5 (*to a very great degree*). Items on the scale are summed for a total disruption score where a higher score indicates greater perceived disruption due to the event. Internal reliability has consistently been in a good range with alphas from .82 to .89 (Cann, Calhoun, Tedeschi, Kilmer, et al., 2010).

3.6.2d Social Support

Social support was assessed by two measures: the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) and the social support subscales of the Job Content Questionnaire (JCQ; Karasek et al., 1998). These

scales were chosen to specifically assess perceived support from significant others, family, friends, coworkers, and supervisors.

The MSPSS is a 12-item scale that assesses perceived adequacy of social support from family, friends, and a significant other. Responses are based upon a 7-point scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). The scale provides total perceived social support and three subscale scores (significant others, family, and friends) where higher scores indicate greater perceived support. The measure has demonstrated adequate test-retest reliability and good internal reliability with alphas from .85 to .91 for the subscales and an alpha of .88 for the total score. Subsequent studies have supported the validity of this measure in community and clinical populations (Clara, Cox, Enns, Murray, & Torgrudc, 2003).

The Social Support subscale of the JCQ was administered. It is divided into two smaller subscales: coworker support and supervisor support. The social support subscale is comprised of 10 items including instrumental (e.g., that coworkers or supervisor are perceived as helpful with completion of job-related activities) and socioemotional support (e.g., coworkers and supervisors are perceived to be receptive and 'friendly') and interpersonal hostility, the absence of perceived support. Responses are based upon a 4-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*) with an additional option of "*I have no supervisor,*" if necessary. The coworker and supervisor support subscales have shown good psychometric properties with alphas ranging from .72 to .81, respectively (Karasek et al., 1998).

### 3.6.2e General Nursing Stress

The Nursing Stress Scale (NSS; Gray-Toft & Anderson, 1981) is a 34-item scale of nursing-specific stressors. The NSS is comprised of seven subscales: death and dying, conflict with other nurses and supervisors, conflict with physicians, workload, uncertainty regarding treatment, lack of support, and inadequate preparation to handle the needs of patients and patients' families. Responses are scored on a 4-point scale ranging from 0 (*never*) to 3 (*frequently*) according to occurrence of the stressor. Subscales are scored by summing items. The total score is calculated by adding all of the subscales together. Higher scores on each subscale and total score are indicative of greater stress in that area. The scale has shown good reliability, $\alpha = .89$ (Gray-Toft & Anderson, 1981).

### 3.6.2f Subjective Well-Being

Subjective well-being has been defined as having two components, an affective and a satisfaction with life component (Diener, 1994). As such, subjective well-being was assessed using two measures: the Positive & Negative Affect Schedule-Short Form (PANAS-SF; Kercher, 1992; Mackinnon et al., 1999) and the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). PANAS-SF is a 10-item measure which assesses recent ("during the past few weeks") positive and negative affect. Five items assess positive affect and five items assess negative affect. Responses are based upon a 5-point scale from 1 (*very slightly or not at all*) to 5 (*extremely*) where higher scores on the subscale indicate more positive or negative affect. Cronbach's alphas demonstrate good validity and reliability for the positive ($\alpha = .87$) and negative ($\alpha = .78$) affect items (Mackinnon et al., 1999).

The SWLS is a 5-item scale that measures global life satisfaction. Responses are scored on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*) with higher scores indicating greater life satisfaction. The scale has demonstrated good psychometric properties (Diener et al., 1985; Pavot & Diener, 2008; C. Wu, Chen, & Tsai, 2009). These two measures, the PANAS and the SWLS, are frequently used in the literature together to assess for subjective well-being (SWB) and consistent with prior research were analyzed separately (e.g., Cloninger & Zohar, 2011; Haber, Cohen, Lucas, & Baltes, 2007; Parker, Strath, & Swartz, 2008). Greater SWB is indicated by high scores on the SWLS and the Positive Affect scale and low scores on the Negative Affect scale (e.g., Dierk et al., 2006; Kim & Hatfield, 2004).

3.6.2g World Assumptions

The World Assumptions Scale (WAS; Janoff-Bulman, 1989, 1992) is a 32-item measure of cognitive assumptions about the self and the world. Responses are based upon a 6-point scale from 0 (*thoroughly disagree*) to 5 (*strongly agree*). The scale produces a summed total and subscale scores. Higher scores indicate more positive views regarding the world. The scale has three higher-order scales (benevolence of the world, meaningfulness of the world, and self-worth) and five other domains (justice, controllability, randomness, self-controllability, and luck) which comprise the three higher-order scales. Cronbach's alpha coefficients for the three higher-order scales have been shown to be satisfactory; benevolence of the world $\alpha = .87$, meaningfulness of the world $\alpha = .76$, and self-worth $\alpha = .80$ (Schwartzberg & Janoff-Bulman, 1991).

See Table 1 for an outline of timing of each assessment measure.

Table 1

Timeline and Measurements

| **Tests and Observations** | **Number of items** | **Week 0 (Baseline, T1)** | **Week 8 (T2)** | **Week 16 (T3)** |
|---|---|---|---|---|
| Signed informed consent | | X | | |
| Sociodemographic information | 8 | X | | |
| Nursing related variables | 4, 5, 5 | X | X | X |
| Posttraumatic Growth Inventory | 21 | | X | X |
| Brief COPE subscales | 18 | X | X | X |
| Core Beliefs Inventory | 10 | | X | X |
| Multidimensional Scale of Perceived Social Support | 12 | X | X | X |
| Job Content Questionnaire subscales | 10 | | X | X |
| Nursing Stress Scale | 34 | | X | X |
| Positive and Negative Affect Scale-Short Form | 10 | X | X | X |
| Satisfaction With Life Scale | 5 | X | X | X |
| World Assumptions Scale | 32 | X | | X |

# CHAPTER 4: RESULTS

Over the course of 2 ½ years (June 2010 through September 2012), more than 200 eligible nurses were approached from three sites: Site A, Site B, and Site C. Unfortunately, the exact number of nurses approached was not tracked at Site A, and therefore the precise number is not available. Across the three sites, a total of 89 newly-licensed, newly-hired nurses consented to participate in the study. Eighty-one of these nurses provided usable data at baseline. Of these 81, 40 (49.4%) completed surveys at all three time points, 9 (11.1%) completed baseline and T3 surveys but not T2, 15 (18.5%) completed baseline and T2 surveys but not T3, and 17 (21%) completed baseline but no follow-up time point. For the purposes of data analyses, the 49 nurses who completed all three time points or at least baseline and T3 time points were included in the final analyses.

Data collection at Site A occurred over 19 months, 60 participants consented and completed baseline data. Thirty-one (51.6% of those originally consented at Site A) were included in the final analyses. At Site B, over nine months, 29 newly-licensed nurses were identified as eligible for the study, of which 14 (48.3%) consented and completed baseline data. Of these 14, 10 were included in the final analyses. At Site C, 120 potentially eligible nurses were identified by Site C's registrar. Recruitment emails and follow-up phone calls resulted in 19 (15.8%) consenting to participate. Of these 19, 8 provided adequate data to be included in the final analyses.

Demographic and nursing related variables are presented in Table 2. The means and standard deviations for each measure across the time points are in Table 3.

Table 2

Demographics at Baseline and Nursing Characteristics at T3 (*N* =49)

| Demographic/nursing characteristic | *n* (%) |
|---|---|
| Age [mean (SD)] | 27.37 (7.22) |
| Range | 21 – 52 |
| Gender | |
| Female | 46 (93.9) |
| Male | 3 (6.1) |
| Race/Ethnicity | |
| White/Caucasian | 40 (81.6) |
| Black/African American | 5 (10.2) |
| American Indian/Alaskan Native | 2 (4.1) |
| Asian | 1 (2.0) |
| Did not wish to provide information | 1 (2.0) |
| Marital Status | |
| Never married/single | 29 (59.2) |
| Currently married | 19 (38.8) |
| Divorced/separated | 1 (2.0) |
| Nursing Specialty | |
| Surgical | 13 (26.5) |
| Hematology/Oncology | 11 (22.4) |
| Cardiology | 7 (14.3) |
| Critical Care/ER/Trauma | 5 (10.2) |
| ICU/NICU | 3 (6.1) |
| Intermediate Care/Telemetry | 3 (6.1) |
| Neurology | 2 (4.1) |
| Gerontology | 1 (2.0) |
| Nephrology | 1 (2.0) |
| Other/did not report | 3 (6.1) |
| Newly-Licensed Nurse | 49 (100) |
| Average hours worked per week* | |
| Mean (SD) | 39.42 (7.33) |
| Range | 31 – 72 |
| # of patients responsible for in an average shift* | |
| Mean (SD) | 5.14 (2.17) |
| Range | 2 – 15 |
| # of patients in his/her care who have died over the past 2 months* | |
| Mean (SD) | 1.31 (1.94) |
| Range | 0 – 10 |
| Typical shift schedule* | |
| 7am to 7pm | 23 (46.9) |
| 7pm to 7am | 21 (42.9) |
| Other | 5 (10.2) |

*Note.* *as assessed at T3

Table 3

Results of Each Measure Assessed Across Each Time Point

| Measurement | Range of possible scores | T1 Mean (SD) | T2 Mean (SD) | T3 Mean (SD) |
|---|---|---|---|---|
| Brief COPE | | | | |
| Self-Distraction | 2 – 8 | 4.79 (1.43) | 4.27 (1.80) | 4.51 (1.77) |
| Active | 2 – 8 | 5.63 (1.73) | 5.25 (1.74) | 4.93 (1.76) |
| Denial | 2 – 8 | 2.57 (1.17) | 2.45 (1.01) | 2.31 (0.71) |
| Substance Use | 2 – 8 | 2.12 (0.44) | 2.20 (0.61) | 2.31 (0.92) |
| Behavioral Disengagement | 2 – 8 | 2.22 (0.69) | 2.23 (0.63) | 2.45 (0.96) |
| Venting | 2 – 8 | 4.13 (1.49) | 4.14 (1.34) | 4.16 (1.52) |
| Positive Reframing | 2 – 8 | 5.65 (1.52) | 5.10 (1.69) | 5.18 (1.51) |
| Planning | 2 – 8 | 5.57 (1.47) | 5.08 (1.75) | 5.10 (1.76) |
| Self-Blame | 2 – 8 | 3.76 (1.59) | 4.23 (1.90) | 4.16 (1.78) |
| MSPSS Total Score | 12 – 84 | 73.78 (9.44) | 69.06 (12.26) | 70.37 (9.56) |
| Significant Other | 4 – 28 | 25.31 (3.98) | 23.56 (5.06) | 24.63 (3.82) |
| Family | 4 – 28 | 24.59 (4.13) | 23.35 (4.95) | 23.67 (4.12) |
| Friends | 4 – 28 | 23.88 (3.82) | 22.15 (4.41) | 22.07 (4.25) |
| JCQ Total Work Support | 10 – 50 | - | 30.28 (2.57) | 29.85 (3.07) |
| Coworker Support | 5 – 25 | - | 15.25 (1.48) | 15.18 (1.59) |
| Supervisor Support | 5 – 25 | - | 15.03 (1.75) | 14.67 (2.08) |
| NSS Total Score | 0 – 102 | - | 29.22 (11.23) | 32.18 (12.24) |
| Nursing Event Specific Stressor | 0 – 30 | - | 21.34 (4.66) | 22.58 (4.78) |
| CBI Total Score | 0 – 45 | - | 18.58 (10.02) | 21.53 (11.12) |
| WAS Total Score | 0 – 160 | 96.39 (14.30) | - | 93.36 (14.35) |
| Meaningfulness of World | 0 – 60 | 27.06 (7.02) | - | 27.99 (6.21) |
| Benevolence of World | 0 – 40 | 27.65 (5.53) | - | 25.94 (5.44) |
| Worthiness of Self | 0 – 60 | 41.65 (7.31) | - | 39.42 (7.44) |
| PANAS | | | | |
| Positive Affect | 5 – 25 | 19.57 (3.15) | 12.50 (3.66) | 16.71 (3.27) |
| Negative Affect | 5 – 25 | 13.31 (3.58) | 17.53 (3.39) | 12.39 (4.76) |
| SWLS | 5 – 35 | 27.04 (5.12) | 26.30 (5.67) | 26.06 (6.23) |
| PTGI Total Score | 0 – 105 | - | 52.03 (21.53) | 55.85 (21.24) |
| Relating to Others | 0 – 35 | - | 15.19 (8.32) | 17.07 (7.91) |
| New Possibilities | 0 – 25 | - | 12.93 (5.98) | 13.43 (6.02) |
| Personal Strength | 0 – 20 | - | 10.88 (4.60) | 11.45 (6.02) |
| Spiritual Change | 0 – 10 | - | 4.25 (2.85) | 4.47 (2.97) |
| Appreciation of Life | 0 – 15 | - | 8.78 (3.66) | 9.43 (3.59) |

*Note.* MSPSS = Multidimensional Scale of Perceived Social Support, JCQ = Job Content Questionnaire, NSS = Nursing Stress Scale, CBI = Core Beliefs Inventory, WAS = World Assumptions Scale, PANAS = Positive and Negative Affect Scale-Short form, SWLS = Satisfaction with Life Scale, PTGI = Posttraumatic Growth Inventory, a "-" indicates that the measure was not collected at that time point.

4.1 Hypothesis 1. Newly licensed nurses will display significantly increased PTG over time consistent with levels reported by other helping professions at similar time-points.

To examine hypothesis 1, descriptive statistics of the PTGI total and subscale scores were calculated (means and standard deviations) for both T2 (*n*=40) and T3 (*n*=49). A paired-samples t-test was conducted to determine whether there was a significant, reliable change between T2 PTGI total score and T3 PTGI total score. Actual change was interpreted by using the traditional effect size measure of Cohen's *d.* There was no significant difference between T2 PTGI total score and T3 PTGI total score (see Table 3). Since this hypothesis was exploratory in nature, to more fully examine this hypothesis paired-samples t-tests were also run on each of the PTGI subscales from T2 to T3. There were no significant differences between any of the PTGI subscales from T2 to T3 and none of the *d*'s reached what would even be considered a small effect size of .20 (see Table 4). Nurses did report developing PTG over the course of the study, as indicated by their scores, but their scores did not significantly increase over time. The levels found in this study were approximately equal to (Shakespeare-Finch et al., 2005, female ambulance personnel $M = 54.64$, $SD = 21.28$) or higher than prior studies with similar populations (Linley & Joseph, 2006, disaster response workers $M = 39.88$, $SD = 27.79$; Shiri et al., 2008b, nurses exposed to politically motivated violence $M = 45.1$, $SD = 25.6$).

Table 4

Paired-Samples t-tests and Effect Sizes Between T2 and T3 PTGI Scores for Hypothesis 1

| | T2 Mean (*SD*) | T3 Mean (*SD*) | *t* | *df* | Cohen's *d* |
|---|---|---|---|---|---|
| Total Summed Score | 52.03 (21.54) | 54.94 (20.59) | -1.112 | 39 | -0.138 |
| Relating to Others | 15.19 (8.32) | 16.64 (7.68) | -1.341 | 39 | -0.181 |
| New Possibilities | 12.92 (5.97) | 13.52 (5.87) | -0.774 | 39 | -0.101 |
| Personal Strength | 10.87 (4.60) | 11.00 (3.90) | -0.215 | 39 | -0.030 |
| Spiritual Change | 4.25 (2.85) | 4.45 (2.99) | -0.516 | 39 | -0.061 |
| Appreciation of Life | 8.78 (3.66) | 9.32 (3.75) | -0.984 | 39 | -0.145 |

*Note.* *$p \leq .05$, ** $p \leq .001$.

4.2 Hypothesis 2a. Nurses who report more nursing-related stress (general and event specific), higher work-related perceived social support, and higher non-work related social support will report higher levels of PTG.

To examine hypothesis 2a, a repeated-measures mixed model was used to identify independent predictors of T3 PTGI, while avoiding the error from within-subject correlation that is inherent in a longitudinal analysis that uses a participant's data from multiple time points. Analyses of skewness and kurtosis of all variables indicated that no transformations were necessary. Pearson correlation coefficients were run to examine bivariate relationships between potential predictor variables (MSPSS total, MSPSS family subscale, MSPSS friends subscale, MSPSS significant other subscale, JCQ support total, JCQ co-worker support, JCQ supervisor support subscale, NSS total score, and event related stress score) and the outcome measure (T3 PTGI) (see Table 5). Pearson correlation coefficients only produced one significant positive correlation between event specific related stress at T3 and PTG. Given the number of potential

predictors relative to the small number of available time points, support related subscales would be included in the overall model (versus the total support scores) if there was a significant correlation ($p < .05$) with the outcome of interest. The T2 JCQ total score and the T3 JCQ coworker subscale were approaching significance, but were ultimately non-significant. The MSPSS total score and subscales were not significantly correlated with T3 PTGI. Therefore, in order to explore whether the model would converge, it was run with the NSS, JCQ coworker support, JCQ supervisor support, MSPSS total, and event-specific stress score as predictors, with T3 PTGI as the outcome variable. Unfortunately, the repeated-measures model did not converge. Given the near significant correlations, it is possible the full model did not converge due to the small number of non-missing observations. Therefore, we can neither reject nor accept the null hypotheses based upon the regression analyses. However, based upon the correlation coefficients, event-specific stress (or how stressful/distressful nurses found recent nursing specific events) at T3 was significantly, positively correlated with PTG. When nurses reported greater stress/distress associated with nursing-specific events that they identified as stressful, they also reported greater T3 PTG. Also, work-related support (sum of both co-worker and supervisor) at T2 and coworker support at T3 were approaching statistical significance (positive) with T3 PTG, indicating that when nurses reported greater overall work support at T2 they may also report greater T3 PTG and when nurses reported greater coworker support at T3 they may also report greater T3 PTG.

Table 5

Correlations Between Predictors and T3 PTGI for Hypothesis 2a

| Criterion | T1 *r* | T2 *r* | T3 *r* |
|---|---|---|---|
| MSPSS Total | .00 | .10 | .04 |
| Significant Other Support | .08 | .15 | .16 |
| Family Support | -.04 | .11 | .12 |
| Friends Support | -.02 | -.01 | -.17 |
| JCQ Total | - | .29† | .13 |
| Supervisor Support | - | .19 | -.01 |
| Coworker Support | - | .28 | .26† |
| NSS | - | .21 | .18 |
| Event Related Stress | - | .16 | .45** |

*Note.* †$p > .05$ but $< .07$, *$p \leq .05$, ** $p \leq .001$. T3 PTGI Mean = 55.84, *SD* = 21.24, T1 $n = 49$, T2 $n = 40$, and T3 $n = 49$. MSPSS = Multidimensional Scale of Perceived Social Support, JCQ = Job Content Questionnaire, NSS = Nursing Stress Scale

4.3 Hypothesis 2b. Nurses who report lower event-related stress associated with nursing events, more negative cognitive views about the world, experience less disruption to their cognitive beliefs about the world, and use less effective or "passive" coping mechanisms (e.g., substance use, behavioral disengagement) will report lower levels of PTG.

To examine hypothesis 2b, a repeated-measures mixed model was again used to identify independent predictors of T3 PTG. Analysis of skewness and kurtosis of all variables indicated that no transformations were necessary. Pearson correlation coefficients were run to examine bivariate relationships between the variables of interest for this hypothesis (see Table 6). Namely, the Brief COPE subscales (Denial, Substance Use, Behavioral Disengagement, and Self Blame) at all three time points, WAS total score at T1 and T3, CBI total score at T2 and T3, and event-related stress at T2 and T3. Only the CBI at T2 and T3 and event-specific stress at T3 significantly positively correlated with T3 PTGI. However, in the final model with T3 PTGI as the outcome, the significant associated measures were behavioral disengagement ($p = .004$, negative), core

beliefs ($p < .001$), and event specific stress ($p = .006$). This finding indicates that lower levels of behavioral disengagement, greater challenge to one's core beliefs, and reported higher event-specific stress was associated with greater T3 PTGI scores.

Table 6

Correlations Between Predictors and T3 PTGI for Hypothesis 2b

| Criterion | T1 *r* | T2 *r* | T3 *r* |
|---|---|---|---|
| Brief COPE | | | |
| Denial | .18 | .13 | .14 |
| Substance Use | .06 | -.01 | -.01 |
| Behavioral Disengagement | .01 | .07 | -.11 |
| Self-Blame | .16 | .18 | .15 |
| WAS | -.07 | - | -.11 |
| CBI | - | .53** | .67** |
| Event-Specific Stress | - | .16 | .45** |

*Note.* †$p$ > .05 but < .07, *$p \leq .05$, **$p \leq .001$. T3 PTGI Mean = 55.84, *SD* = 21.24, T1 *n* = 49, T2 *n*= 40, and T3 *n* = 49. WAS = World Assumptions Scale, CBI = Core Beliefs Inventory

Table 7

Analyses of Predictors and T3 PTGI for Hypothesis 2b

| Covariate | PTGI estimate (*SE*) | PTGI *p* value |
|---|---|---|
| Brief COPE | | |
| Denial | 6.66 (3.64) | .076 |
| Substance Use | 3.40 (2.14) | .122 |
| Behavioral Disengagement | -8.90 (2.91) | **.004** |
| Self-Blame | -0.55 (1.67) | .744 |
| WAS | 0.06 (0.15) | .701 |
| CBI | 1.29 (0.21) | **<.001** |
| Event-Specific Stress | 1.25 (0.42) | **.006** |

*Note.* *n* = 41, *df* = 33, WAS = World Assumptions Scale, CBI = Core Beliefs Inventory

4.4 Specific Aim #3: To determine how nurses' cognitive assumptions are impacted by their experiences in nursing and whether social support and coping moderate this relationship and the development of PTG and general well-being.

First, Pearson correlation coefficients were run to examine bivariate relationships between the variables of interest for these hypotheses (See Table 8). For PTG, the correlations were not as expected as there were no significant correlations between PTG and any of the variables. However, several of the correlations were significant between world assumptions over the course of the study and subjective well-being outcomes at T3 (see Table 8).

Table 8

Descriptive Statistics and Correlations for Predictor and Outcome Variables for Hypotheses 3a and 3b

| Criterion | *M* | *SD* | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. T3 PTG | 55.85 | 21.24 | | .07 | .22 | .26 | .01 | -.23 | .06 | -.07 | .04 | -.34* | .05 | -.11 |
| 2. T3 SWLS | 26.06 | 6.23 | | | -.40** | .54** | .32* | .08 | .21 | .27 | .43** | .02 | .46** | .41** |
| 3. T3 PANAS-n | 12.39 | 4.76 | | | | -.37** | -.06 | -.12 | -.16 | -.16 | -.39** | -.30* | -.42** | -.49** |
| 4. T3 PANAS-p | 16.71 | 3.27 | | | | | .14 | .10 | .32* | .26 | .26 | .15 | .47** | .40** |
| 5. T1 WAS-BW | 27.65 | 5.53 | | | | | | .01 | .43** | .61** | .57** | -.10 | .31* | .57** |
| 6. T1 WAS-MW | 27.06 | 7.02 | | | | | | | .37** | .68** | .02 | .59** | .27† | .40** |
| 7. T1 WAS-WS | 41.65 | 7.31 | | | | | | | | .84** | .24 | .11 | .61** | .45** |
| 8. T1 WAS-Total | 96.39 | 14.30 | | | | | | | | | .35* | .30* | .56** | .55** |
| 9. T3 WAS-BW | 25.94 | 5.44 | | | | | | | | | | .20 | .53** | .74** |
| 10. T3 WAS-MW | 27.99 | 6.21 | | | | | | | | | | | .28† | .65** |
| 11. T3 WAS-WS | 39.43 | 7.44 | | | | | | | | | | | | .84** |
| 12. T3 WAS-Total | 93.36 | 14.35 | | | | | | | | | | | | |

*Note.* †$p > .05$ but $< .07$, *$p \leq .05$, **$p \leq .001$, $n = 49$. PTG = Posttraumatic Growth, SWLS = Satisfaction with Life Scale, PANAS-n = Positive and Negative Affect Scale-Negative, PANAS-p = Positive and Negative Affect Scale-Positive, WAS-BW = World Assumptions Scale-Benevolent World, WAS-MW = World Assumptions Scale-Meaningful World, WAS-WS = World Assumptions Scale-Worthiness of Self, WAS = World Assumptions Scale

4.4.1 Hypothesis 3a. Nurses with more positive world assumption at baseline will fare better than nurses with more negative world assumptions in follow-up assessments on PTG and general well-being.

For hypothesis 3a, a multiple linear regression analysis was run with T3 PTG as the outcome and the three superordinate categories of the WAS at T1, namely Benevolence of the World (WAS-BW), Meaningfulness of the World (WAS-MW), and Worthiness of the Self (WAS-WS), as predictors. The overall model was not significant (see Table 9). However, the beta for meaningfulness of the world was significant (negative, see Table 9). Nurses who reported lower beliefs in the meaningfulness of the world at baseline reported greater T3 PTG. In other words, nurses who reported greater beliefs of vulnerability and lack of control at baseline were more likely to report PTG.

Subjective well-being was also analyzed by multiple linear regression analyses with each outcome variable (SWLS, PANAS-Negative, and PANAS-Positive) and the predictors of the superordinate categories of the WAS at T1 (WAS-BW, WAS-MW, and WAS-WS). None of the overall models were significant (see Table 9). However, in the multiple linear regression for the outcome of satisfaction with life (SWLS), the beta for benevolence of the world was significant (positive). Based upon this sample, when nurses reported baseline beliefs that the world and the people in it are generally good, they also reported more satisfaction with life at T3.

Table 9

Regression Results of T1 WAS Subscales Predicting T3 PTGI and Subjective Well-Being for Hypothesis 3a

| Criterion | T1 WAS-BW β | T1 WAS-MW β | T1 WAS-WS β | $F$ (3, 44) | $R^2_{adj}$ | $p$ |
|---|---|---|---|---|---|---|
| T3 PTG | -.060 | -.308* | .209 | 1.374 | .023 | .263 |
| T3 SWLS | .321* | .024 | .067 | 2.170 | .069 | .105 |
| T3 PANAS-n | -.054 | -.043 | -.123 | 0.451 | -.036 | .718 |
| T3 PANAS-p | .055 | -.045 | .313 | 1.766 | .047 | .168 |

*Note.* *$p \leq .05$, ** $p \leq .001$, $n = 49$. WAS-BW = World Assumptions Scale-Benevolent World, WAS-MW = World Assumptions Scale-Meaningful World, WAS-WS = World Assumptions Scale-Worthiness of Self, PTG = Posttraumatic Growth, SWLS = Satisfaction with Life Scale, PANAS-n = Positive and Negative Affect Scale-Negative, PANAS-p = Positive and Negative Affect Scale-Positive.

4.4.2 Hypothesis 3b. Nurses who report greater change (difference score) in basic assumptions will report better well-being and PTG than those who report less change in these assumptions.

To examine whether there was a possible interaction over time between the WAS score, four multiple linear regressions were run using the variables T1 WAS total score, T3 WAS total score, and the interaction of T1 WAS total score and T3 WAS total score as predictors of PTG or the individual measures of SWB as outcomes. Prior to running the multiple linear regressions, to address multicollinearity, T1 WAS total, T3 WAS total, and the interaction scores were centered. The model predicting PTG was not significant, indicating that neither the content of beliefs regarding the world nor changes in the content of those beliefs over time were associated with PTG.

The model predicting SWLS was significant (see Table 10), with a significant main effect for the T3 WAS total score. As expected, the main effect for T3 WAS total score indicates that more positive beliefs about the world at T3were associated with

greater levels of subjectively reported satisfaction with life. There was also a significant interaction, when T1 WAS scores were low and T3 WAS scores were high, there was greater satisfaction with life. In other words, those who reported more negative beliefs about the world at T1 became more positive over the course of the study and were more likely to report greater satisfaction with life (see Figure 3). Tests of simple slopes reveal that when T3 WAS total score is higher, the slope is not reliably different from 0, $t(24) = -1.77$, $p = .09$. For T3 WAS total scores, the slope is also not significant, $t(24) = 1.78$, $p = .18$. It is likely the non-significant slopes are due to limited power in this sample.

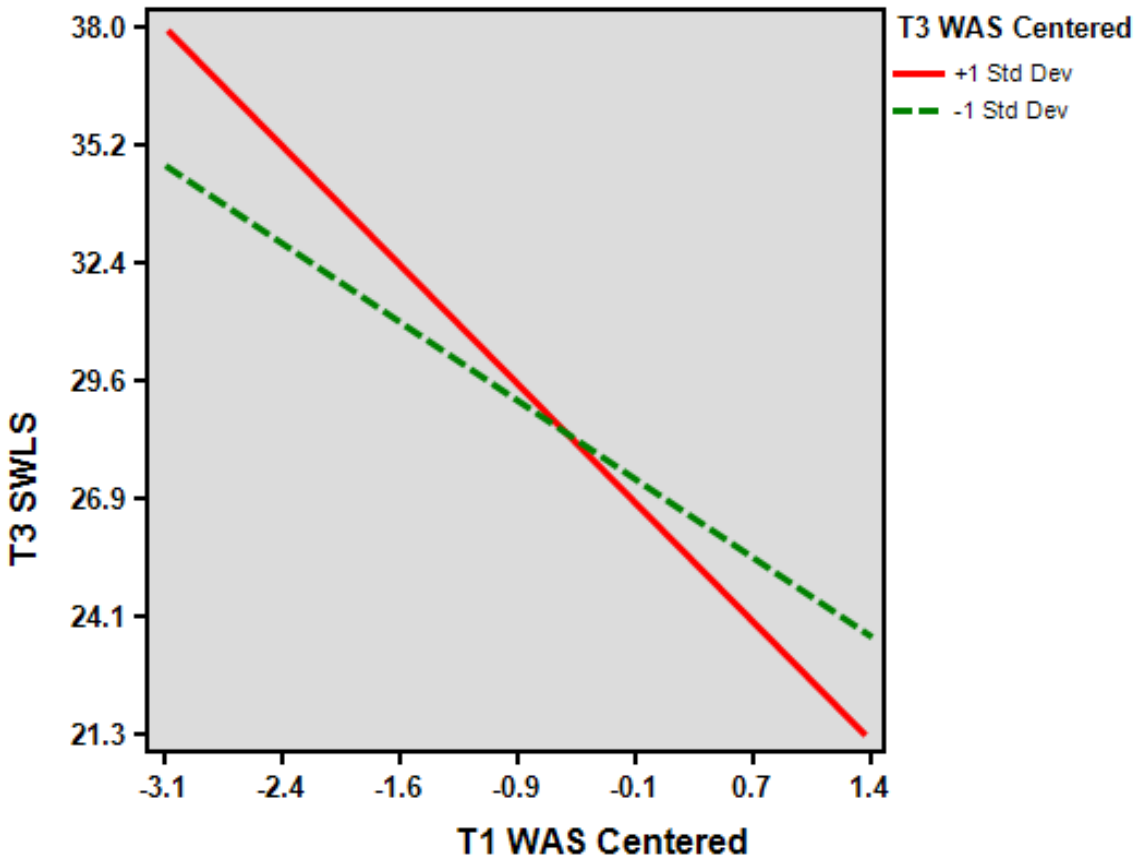


Figure 3

Plot of the interaction of the T1 WAS and T3 WAS total scores in predicting satisfaction with life at T3.

The model predicting PANAS-Negative was also significant, with a main effect for the T3 WAS total score and an interaction between the T1 and T3 WAS total scores (see Table 10). More negative beliefs about the world were associated with greater levels of negative affect. There was also an interaction, where it appears that those with higher T1 WAS scores and lower T3 WAS scores reported greater negative affect (see Figure 4). In other words, when nurses reported a change in beliefs about the world, when they started with more positive beliefs regarding the world and these beliefs became more

negative over time, they also reported more negative affect. However, tests of simple slopes reveal that when T3 WAS total score is higher, the slope is not reliably different from 0, $t(24) = 0.27$, $p = .78$. The same is true when T3 WAS total scores are lower, $t(24) = 1.09$, $p = .28$. It is likely the non-significant slopes are due to limited power in this sample.

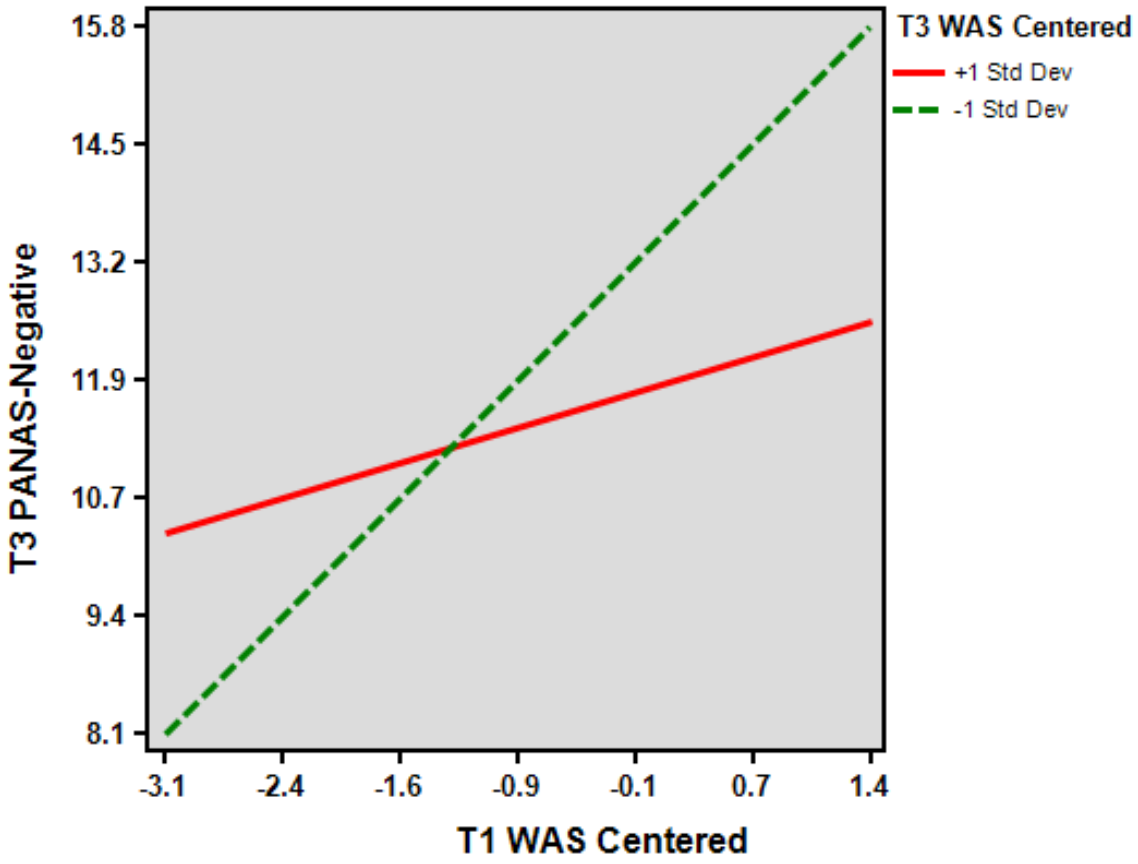


Figure 4

Plot of the interaction of the T1 WAS and T3 WAS total scores in predicting negative affect at T3

The regression analyses on T3 Positive affect resulted in a significant main effect for T3 WAS total scores. There was no main effect for T1 WAS nor a significant interaction (see Table 10). Higher levels of reported beliefs about the world at T3 were associated with higher levels of positive affect.

Table 10

Regression Results of T1 and T3 WAS Interaction Predicting PTGI and Subjective Well-Being Scores for Hypothesis 3b

| Criterion | T1 WAS β | T3 WAS β | T1 WAS x T3 WAS β | *F* | $R^2_{adj}$ | *p* |
|---|---|---|---|---|---|---|
| T3 PTG | -.118 | -.238 | -.337 | 1.346 | .021 | .271 |
| T3 SWLS | .203 | .572** | .475** | 6.785 | .266 | <.001 |
| T3 PANAS-n | .050 | -.731** | -.369* | 7.878 | .301 | <.001 |
| T3 PANAS-p | .061 | .392* | .029 | 3.065 | .114 | .037 |

*Note.* *$p \leq .05$, ** $p \leq .001$, $N = 49$, T1 WAS and T3 WAS scores were centered prior to being entered in the regression model. WAS = World Assumptions Scale, PTG = Posttraumatic Growth, SWLS = Satisfaction with Life Scale, PANAS-n = Positive and Negative Affect Scale-Negative, PANAS-p = Positive and Negative Affect Scale-Positive.

4.4.3 Hypothesis 3c. Perceived social support and coping style will moderate the relationship between world assumptions and posttraumatic growth and general well-being so that nurses with less positive world assumptions at baseline, when reporting high levels of perceived social support and adaptive coping styles, will indicate greater posttraumatic growth and well-being.

To examine hypothesis 3c, four repeated-measures mixed models were used to identify independent predictors of each outcome, namely T3 PTGI, T3 SWLS, T3 PANAS-Negative and T3 PANAS-Positive. Analyses of skewness and kurtosis of all variables indicated that no transformations were necessary. Pearson correlation

coefficients were run to examine bivariate relationships between the variables of interest for these hypotheses and each respective outcome to reduce the number of predictors in the final model. Ultimately, the only variables removed from each model were non-significant Brief COPE subscales ($p > .05$). Due to limited power, the models were run both with and without the interaction terms (WAS x MSPSS, WAS x JCQ, WAS x Self-Blame, WAS x Denial, and WAS x Behavioral Disengagement) to determine whether the predictors alone or with the interactions (moderations) would affect the models. Table 11 outlines correlations with the T3 PTGI, T3 SWLS, T3 PANAS-Positive, and T3 PANAS-Negative.

Predictors included in the model with T3 PTGI as an outcome included the MSPSS total score, JCQ total score, WAS total score, Brief COPE-Active, Brief COPE-Planning, and the Brief COPE-Positive Reframing. Predictors in the model with T3 SWLS as an outcome included the MSPSS total score, JCQ total score, WAS total score, Brief COPE-Substance Use, Brief COPE-Behavioral Disengagement, Brief COPE-Planning, and the Brief COPE-Self Blame. Predictors included in the model with T3 PANAS-Negative as an outcome included the MSPSS total score, JCQ total score, WAS total score, Brief COPE-Self Distraction, Brief COPE-Behavioral Disengagement, Brief COPE-Venting, Brief COPE-Planning, and the Brief COPE-Self-Blame. Unfortunately, these three repeated measures model did not converge. Predictors included in the model with T3 PANAS-Positive as an outcome included the MSPSS total score, JCQ total score, WAS total score, Brief COPE-Self Blame, Brief COPE-Denial, and the Brief COPE-Behavioral Disengagement. This model converged, but none of the predictors in the model were significant (see Table 12).

Table 11

Correlations Between Predictor Variables and T3 PTGI and Subjective Well-Being Scores for Hypothesis 3c

| | PTGI | | | SWLS | | | PANAS-Positive | | | PANAS-Negative | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Criterion | T1 *r* | T2 *r* | T3 *r* | T1 *r* | T2 *r* | T3 *r* | T1 *r* | T2 *r* | T3 *r* | T1 *r* | T2 *r* | T3 *r* |
| Brief Cope | | | | | | | | | | | | |
| Self-Distraction | .18 | .18 | .21 | .08 | .03 | -.22 | .04 | -.10 | -.22 | -.17 | .12 | .37* |
| Active | .21 | .29† | .45** | .08 | -.07 | -.26† | .03 | .08 | .06 | -.01 | -.09 | -.00 |
| Denial | .18 | .13 | .14 | .14 | .13 | -.19 | -.12 | .11 | -.28* | .06 | -.06 | .22 |
| Substance Use | .06 | -.01 | -.01 | -.01 | .10 | -.31* | -.05 | -.00 | -.11 | -.07 | -.13 | .11 |
| Behavioral Disengagement | .01 | .07 | -.11 | -.00 | .12 | -.42* | -.11 | -.21 | -.48** | .02 | .13 | .40* |
| Venting | .10 | .09 | .26† | .03 | .18 | -.07 | -.14 | .02 | -.15 | -.03 | -.05 | .34* |
| Positive Reframing | .14 | .30† | .52** | -.10 | -.08 | -.23 | .01 | -.06 | .00 | -.09 | -.04 | .23 |
| Planning | .03 | .05 | .32* | -.01 | -.27 | -.34* | -.11 | -.18 | -.22 | -.04 | .01 | .33* |
| Self-Blame | .16 | .18 | .15 | .04 | -.28 | -.46** | -.20 | -.35* | -.49** | .00 | .22 | .56** |
| MSPSS | .00 | .10 | .04 | .20 | .24 | .26† | .10 | .31* | .08 | -.12 | -.11 | -.09 |
| JCQ | - | .29† | .13 | - | .12 | .36* | - | .22 | .33* | - | .03 | -.47** |

*Note.* †$p > .05$ but $< .07$, *$p \leq .05$, ** $p \leq .001$. T3 PTGI Mean = 55.84, *SD* = 21.24, T1 $n = 49$, T2 $n = 40$, and T3 $n = 49$, "-" indicates the measure was not collected at this time point. PTG = Posttraumatic Growth, SWLS = Satisfaction with Life Scale, PANAS-n = Positive and Negative Affect Scale-Negative, PANAS-p = Positive and Negative Affect Scale-Positive, MSPSS = Multidimensional Scale of Perceived Social Support

Table 12

Analysis of Predictors and T3 PANAS-Positive for Hypothesis 3c

| Covariate | PTGI estimate (*SE*) | *p* value |
|---|---|---|
| Brief COPE | | |
| Self-blame | -0.52 (0.29) | .08 |
| Denial | 0.41 (0.68) | .55 |
| Behavioral Disengagement | -0.80 (0.58) | .17 |
| MSPSS | -0.02 (0.04) | .66 |
| JCQ | 0.16 (0.14) | .28 |
| WAS | 0.04 (0.03) | .19 |

*Note.* $n = 49$, $df = 42$, MSPSS = Multidimensional Scale of Perceived Social Support, JCQ = Job Content Questionnaire, WAS = World Assumptions Scale

# CHAPTER 5: DISCUSSION

Several patterns emerged in this study. First, nurses reported PTG at relatively stable levels over the course of the study (16 weeks) and at similar or higher levels than cross-sectional studies with similar populations. General nursing-related stress was not associated with the development of PTG and was relatively low. However, when given the opportunity to identify the most stressful nursing-related events and rate them on how distressing they were, nurses reported fairly high levels of distress. Those nurses who reported higher event-specific distress also reported more PTG. Challenges to one's core beliefs, rather than the nature of the beliefs themselves, are important to the development of PTG. This relationship appears to be the case even when taking into account other factors such as perceived social support and coping styles. The findings also suggest that content of a person's core beliefs, whether they change as a result of a stressor, have a relationship with a person's subjective well-being and positive affect. When an individual has more positive beliefs about the world, particularly that the world is a benevolent place, (s)he is more likely to report satisfaction with life. When these beliefs become more negative over time, due to stressful events, a person is more likely to report negative affect. The findings for each specific aim are discussed below.

5.1 Specific Aim #1: To determine whether, and to what extent, nurses will report some level of PTG and whether there is change over time.

Hypothesis 1, that newly-licensed nurses will display significantly increased PTGI scores over time consistent with levels reported by other helping professions at similar time-points, was partially supported. In this sample, there were no significant differences on PTGI scores during the study. The majority of cross-sectional research suggests that PTG develops over time. However, recently published longitudinal data support that PTGI scores initially increase over time and then become relatively stable as indicated by 30- and 35-year evaluations post-trauma (Dekel, Ein-Dor, & Solomon, 2012). The data for this study assessed PTG over a very brief period (approximately 16 weeks). If the time between assessments had been extended, it is possible that levels of PTG could have changed but more research is warranted examining how PTG develops over time.

Nurses reported PTG (T2 PTGI *M* = 52.03, *SD* = 21.53; T3 PTGI *M* = 55.85, *SD* = 21.24) at similar or somewhat higher levels than previously published cross-sectional data with similar populations (Linley & Joseph, 2006, disaster response workers *M* = 39.88, *SD* = 27.79; Shakespeare-Finch et al., 2005, female ambulance personnel *M* = 54.64, *SD* = 21.28, male ambulance personnel *M* = 47.74, *SD* = 21.45; Shiri et al., 2008b, nurses *M* = 45.1, *SD* = 25.6). Given the recent research indicating there is an optimal level of distress to develop PTG (L. G. Calhoun, personal communication, May 11, 2009; Carver et al., 1989; Kleim & Ehlers, 2009; Kunst, 2010; McCaslin et al., 2009; Powell et al., 2003), with either too little distress not stimulating PTG or too much distress

overwhelming the person, this study suggests that nurses experience adequate distress to report PTG. This relationship will be discussed more below with hypothesis 2a.

5.2 Specific Aim #2: To determine if nursing-specific stressors and other psychosocial variables (e.g., coping, perceived social support) predict the development of PTG in nurses.

Hypotheses 2a, that nurses who report more nursing-related stress (general and event specific), higher work-related perceived social support, and higher non-work related social support will report higher levels of PTG, could neither be confirmed nor disconfirmed as the model would not converge. Examination of the correlations resulted in one significant correlation (event-specific nursing at T3 and PTGI at T3). On a general nursing stress scale (NSS), this sample of nurses reported somewhat lower levels of general nursing stress than previously reported from cross-sectional assessments (Chang et al., 2007; Lambert et al., 2004). The levels of general nursing stress in this sample were also lower than previously published findings from a similar comparison group of recently-licensed nurses in Ireland who reported higher scores on the subscales of the NSS than this sample (Suresh, Matthews, & Coyne, 2013). For example, on the subscale Work Load, this sample's T3 mean was 8.63 (*SD* = 3.28) whereas the Suresh et al.'s sample mean was 11.47 (*SD* = 3.51). On the subscale Death and Dying, this sample's T3 mean was 6.84 (*SD* = 3.68) whereas Suresh et al.'s sample mean was 9.63 (*SD* = 3.42). The remaining subscales for the NSS in these two studies followed similar patterns.

Lower levels of general nursing stress compared to other nurse populations could be due to any number of reasons (e.g., new employees receiving reduced work-loads, differences/changes in administrative policies). However, when the nurses in this study

were asked to report what their three greatest stressors as a nurse had been over the past several months and rate their level of difficulty/stressfulness, nurses reported a wide variety of stressors including interpersonal difficulties (with co-workers/physicians, patients, and patients' families), complicated medical care, and the suffering/death of patients. They also rated these events as very stressful (T2 $M$ = 21.34, $SD$ = 4.66; T3 $M$ = 22.58, $SD$ = 4.78). The significant correlation between event-specific stress and PTG supports the notion that specific experiences of nurses (not the broader challenges of a stressful work environment) are adequately "seismic" so that nurses develop PTG. In other words, the overall day-to-day challenges of working within nursing (e.g., "breakdown of a computer" or "inadequate information from a physician regarding the medical condition of a patient") are not adequate for the development of PTG. However, when nurses are asked to outline and rate what they find most distressing, these events are associated with the development of PTG. This finding is particularly interesting as PTG has recently received increased scrutiny regarding whether PTG is truly reflective of actual change or, as some would indicate, reflective of a coping strategy (e.g., Frazier et al., 2009). However, as Skinner, Edge, Altman, and Sherwood (2003) define, while coping "encompasses the myriad actions individuals use to deal with stressful experiences" (Skinner et al., 2003, p. 217) they also make it clear that there is a pattern to an individual's coping style(s). As such, it seems reasonable that if PTG were a "coping" style, general nursing stress would have also been associated with the development of PTG. In other words, if PTG were to reflect a coping process, than it would have generalized to the broader spectrum of nursing related stress.

Perceived social support, based upon correlational analyses, did not present as strong a relationship with PTG as expected. Examining the findings from this hypothesis and the other hypotheses of this study, perceived social support displayed a relatively weak relationship with PTG. Work-related support at T2 and coworker support at T3 approached statistical significance (positive), where more reported perceived support from work-related sources appears to be associated with the development of PTG. However, non-work related support did not result in any associations with PTG. Thus, this non-significant finding does not mean that perceived social support or its components are not related to the development of PTG. One possible reason that social support has only been found to have a "moderate" effect on the development of PTG (see meta-analysis by Prati & Pietrantoni, 2009) is that aspects of perceived support have not been adequately parsed out in the research.

Pietrzak et al. (2010) assessed Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans a mean of 26.7 months following their last deployment. They found that perceived support post-deployment from family, friends, coworkers, employers and the greater community was not associated with the development of PTG. However, when veterans indicated greater perceived support from their military unit and leaders at the time of deployment, they were more likely to report PTG (Pietrzak et al., 2010). It is arguable that the findings of this study reflect a similar finding, support within the context of a specific stressor is important to PTG, rather than perceived support in general or support in other domains of one's life. It may be beneficial for future research on PTG, when examining perceived support, to evaluate potential opportunities for disclosure related to the significant event in conjunction with general support areas.

Hypothesis 2b, nurses who report lower event-related stress associated with nursing events, more negative cognitive views about the world, less disruption to their cognitive beliefs about the world, and use less effective or "passive" coping mechanisms (namely substance abuse, behavioral disengagement, denial, and self-blame) will report lower levels of PTG, was predominantly supported. The findings of this study indicate that lower levels of behavioral disengagement, greater challenge to one's core beliefs, and greater event-specific stress were associated with greater T3 PTGI scores. Nurses, when experiencing adequately seismic events, who actively try to cope with the situation and as part of that effort evaluate their assumptions regarding the world, are more likely to report PTG. Less use of the coping style behavioral disengagement supports the notion that the development of PTG is an active process requiring attention to one's stressful experience. Also important, as a result of their experience(s), they examined their beliefs about the world. It was hypothesized that the combination of examination of core beliefs and the change of content in core beliefs/assumptions would both lead to PTG. However, based upon this analysis, it appears to be the examination of the beliefs that is pertinent (process versus content). This finding supports prior cross-sectional research evaluating the examination of core beliefs as an integral component for the development of PTG (Cann, Calhoun, Tedeschi, & Solomon, 2010; Lindstrom et al., 2011; Triplett et al., 2012).

5.3 Specific Aim #3: To determine how nurses' cognitive assumptions are impacted by their experiences in nursing and whether social support and coping moderate this relationship and the development of PTG and general well-being.

Hypothesis 3a, that nurses with more positive world assumptions at baseline will fare better than nurses with more negative world assumptions in follow-up assessments on PTG and general well-being, and Hypothesis 3b, that nurses who report greater change in basic assumptions will report better well-being and PTG than those who report less change in these assumptions, were partially supported. Beliefs in a benevolent world and in worthiness of the self at baseline were not associated with T3 PTG. Also, the longitudinal change in the content of beliefs was not associated with the development of PTG. However, nurses who reported beliefs that there was less meaningfulness or order in the world reported more PTG. In other words, when nurses reported the beliefs that people have minimal control over the environment and that the actions a person takes do not affect what happens to them also reported more PTG. This particular finding was opposite of expected, but could reflect a number of factors. One possibility is that aspects of meaningfulness, when viewed in the negative, are potentially adaptive for nurses. For example, a component of meaningfulness is justice. Janoff-Bulman (1992) states that "when we view the world in terms of justice, negative events are viewed as punishments and positive ones as rewards" (Janoff-Bulman, 1992, p. 9). Perhaps when nurses in a caring profession view the loss of health as not necessarily the result of patient behavior, they are able to better empathize with their patients. Through empathizing with their patients, they experience greater distress and subsequent PTG.

Subjective well-being presented a different pattern of findings when looking at content of world beliefs and well-being as an outcome. Namely, beliefs about a benevolent world at baseline was associated with satisfaction with life, such that when participants reported believing that the world was generally a good place, misfortune is a

relatively infrequent occurrence, and that people are generally good, the more likely participants were to report better satisfaction with life. This finding is consistent with prior cross-sectional research finding that lower levels of positive beliefs are associated with reduced well-being (e.g., Bamber & McMahon, 2008; Matthews & Marwit, 2003). Also, there were several significant patterns with regard to change in content of beliefs relative to subjective well-being, whereas this pattern of findings was not found for PTG. Specifically, when looking at satisfaction with life, nurses whose reported beliefs regarding the world became more positive over the course of the study also reported higher levels of satisfaction with life at the end of the study. Also, at the end of the study, nurses who reported more positive beliefs also reported more satisfaction with life. There was also a significant finding for negative affect and world beliefs. Nurses whose world beliefs over the course of the study became more negative also reported more negative affect at the end of the study. These patterns of findings regarding world beliefs and well-being make intuitive sense and are consistent with previous literature (Feist, Bodner, Jacobs, Miles, & Tan, 1995; Palgi, Shrira, & Ben-Ezra, 2011). While there was not an interaction, more positive beliefs about the world were generally associated with more positive affect, although increases or decreases in positive beliefs did not have an effect on satisfaction with life. In summary, when nurses' beliefs regarding the world became more positive they reported more positive affect but when beliefs became more negative they reported more negative affect. Also, at baseline, there were no significant associations between measures of well-being and world beliefs. However, at the end of the study more positive beliefs were associated with more well-being.

Hypothesis 3c, that perceived social support and coping style would moderate the relationship between world assumptions and PTG and general well-being so that nurses with less positive world assumptions at baseline, when reporting high levels of perceived social support and adaptive coping styles, will indicate greater PTG and well-being, was not supported for negative affect, satisfaction with life, or PTG. Unfortunately, the models for three of the measures (PTG, SWLS, and PANAS-negative) would not converge, likely due to a complex model and small sample size. The model did converge for the outcome T3 PANAS-positive, but none of the variables was ultimately significant.

## 5.4 Strengths

One of the main strengths of this study is its longitudinal design. Authors have outlined the abundance of cross-sectional methodology when examining PTG but emphasizing the need for longitudinal designs to determine causal factors (Dekel et al., 2012; Park & Lechner, 2006). Another considerable strength of this study is the initial assessment occurring prior to the significant event(s), essentially "pre-trauma." Within the trauma literature, it is extremely difficult to assess individuals prior to significant events. Historically, assessing individuals prior to a trauma has been accomplished either serendipitously (population is evaluated for another purpose but than a trauma occurs; e.g., Gibbons, Murphy, & Joseph, 2011; Grills-Taquechel et al., 2011; Linley et al., 2007) or a large sampling of a population considered to be "at risk" for trauma (e.g., university students) assessed repeatedly over a predetermined amount of time and at follow-up evaluations assessed for a traumatic event (e.g., Frazier et al., 2012). For both approaches, it is impossible to predict when a trauma will occur. Also, for the latter, this approach does not produce a homogenous trauma population. For example, Frazier et al.

(2009) and Gunty et al. (2011) both assessed undergraduate students for trauma at a baseline and again eight weeks later and analyzed the data from those individuals who reported traumatic events during those eight weeks. The authors did not report the timing of when participants experienced a significant negative event (Frazier et al., 2009; Gunty et al., 2011), and therefore we do not know when the trauma occurred between the baseline and second assessments. They also reported a wide range of potential traumas. This is not to discount the findings of these studies, but emphasizing the difficulties that can be associated with researching trauma populations with a longitudinal design. This study was able to assess nurses at consistent points in their experiences over time, addressing some of the problems with longitudinal research design with "trauma" populations. Admittedly, we did not collect when the nurses' most significant event(s) occurred relative to assessments, but this strategy could be recommended for future research studies.

## 5.5 Limitations

While this study has several strengths, there are also several limitations. First, despite concerted efforts, the overall *N* for the study is relatively small. There were multiple factors which contributed to the small *N* including economic factors influencing hiring rates of newly-licensed nurses and unanticipated difficulties with follow-ups. When it became evident that the study was not accruing adequate participants or adequate follow-ups, two additional sites were added. Despite these additions, the usable body of data was relatively small. Another potential limitation of this study is the brief periods of time between assessments. It is possible, that with longer periods of time between assessments, the development of PTG may have produced different results.

## 5.6 Future Research

Ultimately, future research examining PTG needs to utilize longitudinal designs and larger sample sizes. A number of models in this study did not converge which was likely due to insufficient power for the analyses. As such, future research should work to continue to attempt to perform longitudinal type data with larger samples to take advantage of sophisticated statistical approaches to develop a better understanding of how PTG develops over time and factors which contribute to PTG's development.

Regarding the constructs associated with PTG, these findings support that subjective well-being is likely a separate construct from PTG with its own unique mechanisms. However, the current theoretical model indicates that subjective well-being and PTG are related constructs where through PTG, acceptance of changed beliefs and increased wisdom will lead to subjective well-being. The exact pathways between well-being and PTG have not been clearly distinguished and further research is needed. There is also the question of when the PTG process influences subjective well-being. When examining the relationship between perceived social support and the development of PTG, researchers should take into account not only global perceived support but different sources of support and specifically perceived support surrounding the significant event(s).

Regarding nurses in particular, there are a number of questions that remain. A major area of concern within the nursing literature is nursing stress and turnover (e.g., Staggs & Dunton, 2012). The nurses in this study reported relatively low levels of general nursing stress but high levels of event-specific stress, and the types of specific stressors the nurses reported were consistent with those in the literature (McVicar, 2003).

However, these nurses were relatively new. Therefore, a potential reason for the lower general nursing stress could be related to training-related insulation from organizational stressors (e.g., reduced patient load due to being a recent hire). However, given this is a sample of new nurses, some of the specific incidences in nursing are new to them and therefore may be more challenging than would be for a more seasoned nurse. Perhaps over time, as they develop mastery and organizational demands increase, the observed pattern of this study would change (greater general nursing stress, less event-specific stress/distress). If this pattern changed or presented differently, the question of its impact on PTG remains. Also, we did not collect organization specific data from the nurses. Organizational factors have strong associations with nursing outcomes such as turnover (e.g., Staggs & Dunton, 2012) and subsequently could influence nursing-related stress and possible PTG.

Another nursing-specific area of future study in relation to PTG is the unexpected yet nearly significant findings regarding coping via denial being potentially associated with greater PTG. Coping strategies historically considered 'maladaptive', may actually be adaptive in certain populations such as emergency responders as they allow the individual at the time of the event to professionally detach from what is going on around them and complete the tasks that are needed. What may matter most is individual reengagement in the situation at a later point (Kirby, Shakespeare-Finch, & Palk, 2011). Future research should further explore this relationship with the development of PTG in nursing and emergency personnel.

The question also remains of whether the development of PTG in nurses has an effect not only on subjective well-being but also on nurses' behaviors (personal and

professional) and patient outcomes. For example, do nurses who report higher levels of PTG engage in more health-related activities (e.g., eating well, avoidance of substance abuse)? Do nurses who report higher levels of PTG display greater professionalism such as being on time and successful completion of administrative tasks? Do patients and families report greater satisfaction with care when their nurses report more PTG? Do the patients of nurses with higher levels of PTG experience better outcomes, lower morbidity, and/or lower mortality? These questions are yet to be explored in the literature and require further investigation.

Further research is also needed in interventions fostering the development of PTG. Studies have begun to emerge evaluating whether psychotherapeutic interventions have facilitated potential PTG, but with variable results (Nelson, 2011; Zoellner, Rabe, Karl, & Maercker, 2008). However, these interventions appear to have been designed with the primary objective of a reduction in pathology rather than the development of PTG. Several authors have provided direction regarding the implementation of clinical interventions with the specific objective of fostering PTG in general (e.g., Tedeschi & Calhoun, 2006) and within specific populations such as the military (Biermann, 2003; Buchanan, Anderson, Uhlemann, & Horwitz, 2006). The content of the intervention should appreciate current PTG research and variables that contribute to the development of PTG (Buchanan et al., 2006) while at the same time accommodating the population of interest (Proffitt, Cann, Calhoun, & Tedeschi, 2007). Given that nurses are a potentially unique population, first understanding the mechanisms associated with the development in nurses needs further understanding and such mechanisms should be considered in the development of interventions.

## 5.7 Conclusions

Nurses reported developing PTG at relatively stable levels over the course of the study, consistent with prior cross-sectional studies with similar populations. Consistent with theoretical and recent empirical support from cross-sectional research, the challenge and examination of one's core beliefs, rather than the content of the beliefs themselves, are important to the development of PTG. This appears to be the case even when taking into account other factors such as social support and coping styles. However, the findings also suggest that content of core beliefs have a relationship with a person's subjective well-being and positive affect. When an individual has more positive beliefs about the world, particularly that the world is a benevolent place, they are more likely to report satisfaction with life. When these beliefs become more negative over time, due to stressful events, than a person is more likely to report experiencing negative affect.

Nursing is a noble profession worthy of great respect. The findings of this study are an important first step in identifying that nurses may derive personal benefits from their profession that allow them to live their lives with significantly changed perspectives. As outlined above, much of the research to date on nurses has been on negative outcomes and efforts to avoid negative outcomes. Perhaps it is time for a refocus on the profession of nursing, emphasizing the successes and strengths of these individuals and their care of the suffering.

This study also suggests that nurses may go through a period of significant personal change early in their careers. We do not know the degree to which the positive changes persist, or whether other changes are likely later on. Support for nurses may be most useful in the aftermath of particular events, and then there is opportunity for

personal growth. Health care organizations are in a position to provide this specific support in a way that makes growth outcomes more likely, strengthening a vital resource in their organization.

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# APPENDIX A: SITE A RECRUITMENT LETTER


I am pleased to tell you about a research study at Wake Forest University Baptist Medical Center for newly hired nurses. In an effort to better understand the experience of nursing, this study focused on whether and to what extent nurses may experience some positive life changes from some of their experiences as a nurse. Also, this study is interested in exploring your experiences as a new nurse, your beliefs about the world, how you cope with things, and what your social support is like.

Research studies have the potential to increase our knowledge on a subject. If you decide to participate in this study you will be asked to complete a questionnaire after you are consented and enrolled, then again eight and 16 weeks later. After you complete the third questionnaire you will be finished with the study. The questionnaires will take about thirty to sixty minutes to complete. The data from this study will be used for my dissertation.

I hope you will seriously considering participating in this study. If you have any questions, please feel free to contact me, Michelle Jesse (Study Coordinator) at (336) 716-7156 or email at mijesse@wfubmc.edu. I hope you will consider participating in this exciting study.

Sincerely,

Michelle T. Jesse, MA

APPENDIX B: SITE A IRB APPROVED CONSENT FORM

Department Internal Medicine
Section on Hematology and Oncology

WAKE FOREST
UNIVERSITY
HEALTH SCIENCES

# WORLD ASSUMPTIONS, POSTTRAUMATIC GROWTH, AND CONTRIBUTING FACTORS IN A POPULATION OF NEW NURSES

Informed Consent Form to Participate in Research
*Suzanne C. Danhauer, Ph.D., Principal Investigator*

## INTRODUCTION

You are invited to be in a research study. Research studies are designed to gain scientific knowledge that may help other people in the future. You are being asked to take part in this study because you are a newly licensed, newly hired nurse at Wake Forest University Baptist Medical Center (WFUBMC). Your participation is voluntary. Please take your time in making your decision as to whether or not you wish to participate. Ask the study staff to explain any words or information contained in this informed consent document that you do not understand. You may also discuss the study with your friends and family.

## WHY IS THIS STUDY BEING DONE?

The purpose of this research study is to better understand how the profession of nursing can affect a person at the beginning of his/her career.

## HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

Fifty people at WFUBMC will take part in this study.

## WHAT IS INVOLVED IN THE STUDY?

You will be asked to complete study questionnaires three times: within the first three weeks of your employment at WFUBMC and again 8 and 16 weeks later. Study questionnaires will take about 30-60 minutes to complete each time. Only study staff will

see this information. Your supervisor will not know whether or not you decide to participate and will not see your responses to the questionnaires.

## HOW LONG WILL I BE IN THE STUDY?

You will be in the study for about 16 weeks.

You can stop participating at any time. If you decide to stop participating in the study, we encourage you to talk to the investigators or study staff first.

## WHAT ARE THE RISKS OF THE STUDY?

The risk of harm or discomfort that may happen as a result of taking part in this research study is not expected to be more than in daily life or from routine physical or psychological examinations or tests. You should discuss the risk of being in this study with the study staff.

Taking part in this research study may involve providing information that you consider confidential or private. You can skip any question you do not wish to answer. The research records will be coded and the identifiers will be stores separate from the data. We will secure the research records secure in a locked cabinet in a locked office in the Watlington building and allow only authorized people to have access to the research records. Any information stored electronically will be password protected and data and identifiers will be stored in separate files. .

## ARE THERE BENEFITS TO TAKING PART IN THE STUDY?

If you agree to take part in this study, there may be no direct benefit to you. We hope the information learned from this study will benefit other people in the future. By taking part in this study, you will help increase scientific knowledge about the experience of nursing.

## WHAT OTHER CHOICES ARE THERE?

This is not a treatment study. Your alternative is to not participate in this study.

## WHAT ARE THE COSTS?

There are no costs to you for taking part in this study.

## WILL YOU BE PAID FOR PARTICIPATING?

Participants completing the study will receive a $10 gift card. .

## WHAT ARE MY RIGHTS AS A RESEARCH STUDY PARTICIPANT?

Taking part in this study is voluntary. You may choose not to take part or you may leave the study at any time. Refusing to participate or leaving the study will not result in any penalty or loss of benefits to which you are entitled. Your decision as to whether or not to participate or withdraw will not affect your employment at WFUBMC. If you decide to stop participating in the study we encourage you to talk to the investigators or study staff first to learn about any potential health or safety consequences. The investigators also have the right to stop your participation in the study at any time. This could be because it is in your best interest or the study has stopped.

You will be given any new information we become aware of that would affect your willingness to continue to participate in the study.

## WHOM DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

For questions about the study or in the event of a research-related injury, contact the study investigator, *DR. SUZANNE DANHAUER* at *(336) 716-7975*.

The Institutional Review Board (IRB) is a group of people who review the research to protect your rights. If you have a question about your rights as a research participant, you should contact the Chairman of the IRB at (336) 716-4542.

You will be given a copy of this signed consent form.

## SIGNATURES

I agree to take part in this study. I authorize the use and disclosure of my health information as described in this consent and authorization form. If I have not already received a copy of the Privacy Notice, I may request one or one will be made available to me. I have had a chance to ask questions about being in this study and have those questions answered. By signing this consent and authorization form, I am not releasing or agreeing to release the investigator, the sponsor, the institution or its agents from liability for negligence.

_____

Subject Name (Printed)

_____

Subject Signature Date

_____

Person Obtaining Consent Date

# APPENDIX C: SITE B RECRUITMENT LETTER

HENRY FORD HOSPITAL

2799 West Grand Boulevard
Detroit, MI 48202

I am pleased to inform you of a research study Henry Ford Health System is participating in for newly licensed registered nurses. This study focuses on whether and to what extent, nurses may experience some positive life changes from some of their experiences as a nurse. Additionally, the study is interested in your beliefs about the world, how you cope with stressful situations, and what your social supports are.

If you decide to participate in this study you will be asked to complete a questionnaire at the time you are consented/enrolled, at 8 weeks and again at 16 weeks. Once you complete the third questionnaire, you are finished with the study. The questionnaires will take approximately thirty to sixty minutes to complete. The data from this study will be used for a doctoral dissertation and most likely subsequent publications/manuscripts. As you know, research studies have the potential to increase our knowledge on a subject.

I hope you will consider participating in this study. If you have any questions, please feel free to contact the study coordinator, Michelle Jesse (313) 916-2523 or email mjesse1@hfhs.org. Thank you in advance for your assistance.

Sincerely,

Veronica Hall

Veronica Hall, RN
Chief Nursing Officer – Henry Ford Health System
Chief Operating Officer – Henry Ford Hospital

# APPENDIX D: SITE B IRB APPROVED CONSENT FORM

| | | |
|---|---|---|
| Henry Ford Health System | **CONSENT TO PARTICIPATE IN A RESEARCH STUDY**<br>(HFH IRB form rev: 02/2009) | DATE:<br>MRN:<br>NAME: |
| APPROVED PERIOD<br>DEC 08 '11 DEC 07 '12<br>Institutional Review Board | **PROJECT TITLE:**<br>**World Assumptions, Posttraumatic Growth, and Contributing Factors in a Population of New Nurses** | |

**Michelle T. Jesse, MA, TLLP, Principal Investigator**
**2799 West Grand Boulevard**
**Detroit, MI 48202**
**313-916-2523**

**1. WHY IS THIS RESEARCH BEING DONE?**
You have been asked to take part in a research study because you have are a newly licensed, newly hired registered nurse at Henry Ford Health System (HFHS). The purpose of this research study is to better understand how the profession of nursing can affect a person at the beginning of his/her career.

There will be approximately 35 people in this research study at Henry Ford Health System (HFHS).

This study will also be carried out at Wake Forest University Baptist Medical Center in Winston-Salem, NC. There will be approximately 95 people taking part in this research study throughout the United States.

**2. WHAT WILL HAPPEN IF I TAKE PART IN THIS RESEARCH STUDY?**
You will be asked to complete study questionnaires three times: within the first three weeks of your employment at HFHS and again 8 and 16 weeks later. Study questionnaires will take about 30-60 minutes to complete each time. The questionnaires will ask for demographic information, and about coping style, stressors, beliefs about the world, mood, and whether you experience any positive effects from your work. Only study staff will see this information. Although your supervisor will potentially know whether you are participating in this research study, he/she will not see your responses to the questionnaires or have access to information you provide for this study.

You will be in the study for about 16 weeks.

**3. WHAT ARE THE RISKS OF THE STUDY?**
It is not expected that you will have any complications or discomforts from being in this study. There may be risks or discomforts that are not known at this time.

Taking part in this research study may involve providing information that you consider confidential or private. You can skip any question you do not wish to answer. The research records will be coded and the identifiers will be stored separate from the data. We will secure the research records in a locked cabinet in a locked office and allow only authorized people to have access to the research records. Any information stored electronically will be password protected and data and identifiers will be stored in separate files.

| | | |
|---|---|---|
| | **CONSENT TO PARTICIPATE IN A RESEARCH STUDY**<br>(HFH IRB form rev: 02/2009) | DATE:<br>MRN:<br>NAME: |
| APPROVAL PERIOD<br>DEC 08 '11 DEC 07 '12<br>Institutional Review Board | **PROJECT TITLE:**<br>**World Assumptions, Posttraumatic Growth, and Contributing Factors in a Population of New Nurses** | |

You should tell the person obtaining your consent about any other medical research studies you are involved in right now.

**4. WHAT ARE THE BENEFITS TO TAKING PART IN THE STUDY?**
You will not be helped by participating in this study. However, others may be helped by what is learned from this research.

**5. WHAT OTHER OPTIONS ARE THERE?**
You do not have to participate in this study. Your alternative is to not participate in this study.

**6. WHAT ABOUT CONFIDENTIALITY?**
By signing this consent form, you agree that we may collect, use and release your personal and health information for the purpose of this research study.

We may collect and use:
- Your existing medical records.
- New health information created during this study.
- Health insurance and other billing information.

We may release this information to the following people:
- The Principal Investigator and his/her associates who work on, or oversee the research activities.
- Government officials who oversee research (Food and Drug Administration).
- Other researchers at other institutions participating in the research.

Once your information has been released according to this consent form, it could be released again and may no longer be protected by federal privacy regulations.

This consent form, test results, medical reports and other information about you from this study may be placed into your medical record. Generally, you are allowed to look at your medical record. During the research study, you will not be allowed to look at your research study information that is not in your medical record.

HFHS or others may publish the results of this study. No names, identifying pictures or other direct identifiers will be used in any public presentation or publication about this study unless you sign a separate consent allowing that use. This consent to use and release your personal and health information will expire at the end of this research study.

| | | |
|---|---|---|
| | **CONSENT TO PARTICIPATE IN A RESEARCH STUDY**<br>(HFH IRB form rev: 02/2009) | DATE:<br>MRN:<br>NAME: |
| APPROVED<br>DEC 0 8 '11 DEC 0 7 '12<br>Institutional Review Board | **PROJECT TITLE:**<br>**World Assumptions, Posttraumatic Growth, and Contributing Factors in a Population of New Nurses** | |

You do not have to sign this consent to release your medical information and may cancel it at any time. If you decide not to sign this consent or cancel your consent, you cannot participate in this study. If you notify us that you wish to stop participating in this study, we may continue to use and release the information that has already been collected. To cancel your consent, send a written and dated notice to the principal investigator at the address listed on the first page of this form.

**7. WHAT IF I AM INJURED?**
There is no federal, state, or other program that will compensate you or pay for your medical care if you are injured as a result of participating in this study. You and/or your medical insurance may have to pay for your medical care if you are injured as a result of participating in this study. You are not giving up any of your legal rights by signing this consent form.

**8. WHO DO I CALL WITH QUESTIONS ABOUT THE STUDY OR TO REPORT AN INJURY?**
Michelle T. Jesse, MA, TLLP, or her staff member has explained this research study and has offered to answer any questions. If you have questions about the study procedures, or to report an injury you may contact Michelle T. Jesse, MA, TLLP, at (313) 916-2523. Medical treatment is available to you in case of an injury.

If you have questions about your rights as a research subject you may contact the Henry Ford Health System IRB Coordinator at (313) 916-2024. The IRB is a group of people who review the research to protect your rights.

**9. DO I HAVE TO PARTICIPATE IN THIS STUDY?**
No, your participation in this research study is voluntary. If you decide to participate, you can stop at any time. If this happens, you may be asked to return for a visit for safety reasons. You will get the same medical care from HFHS whether or not you participate in this study. There will be no penalties or loss of benefits to which you would otherwise be entitled if you choose not to participate or if you choose to stop your participation once you have started. You will be told about any significant information that is discovered that could reasonably affect your willingness to continue being in the study.

**10. WHO ELSE CAN STOP MY PARTICIPATION?**
We do not foresee any circumstances which participation will be terminated by the investigator. If an event were to occur which would influence your participation, you will be notified by study personnel.

The Principal Investigator, sponsor or your doctor can end your participation in the research study at any time. If this happens, you may be asked to return for a visit for safety reasons.

| | | |
|---|---|---|
| Henry Ford Health System | **CONSENT TO PARTICIPATE IN A RESEARCH STUDY**<br>(HFH IRB form rev: 02/2009) | DATE:<br>MRN:<br>NAME: |
| APPROVAL PERIOD<br>DEC 08 '11 DEC 07 '12<br>Institutional Review Board | **PROJECT TITLE:**<br>**World Assumptions, Posttraumatic Growth, and Contributing Factors in a Population of New Nurses** | |

**11. WILL IT COST ANYTHING TO PARTICIPATE**
We do not expect there to be any additional costs to you if you participate in this study. Items related to the routine medical care that you would receive even if you did not participate in this study will be billed to you or your insurance company. You have the right to ask what it will cost you to take part in this study.

**12. WILL I BE PAID TO PARTICIPATE?**
There will be no compensation to you for your participation in this study.

**13. CONSENT**
You have read this consent form or it has been read to you. You understand what you are being asked to do. Your questions have been answered. Any technical terms you did not understand have been explained to you. You agree to be in this study. You will be given a copy of this consent form.

| | | |
|---|---|---|
| Signature of Subject | Date | Time |
| Print Name of Subject | | |
| Witness to Signature | Date | Time |
| Print Name of Person Obtaining Consent | | |
| Signature of Person Obtaining Consent | Date | Time |

# APPENDIX E: SITE C RECRUITMENT EMAIL

Dear [insert individual potential participant's name]

I am pleased to tell you about a multi-site research study for newly hired nurses. In an effort to better understand the experience of nursing, this study focused on whether and to what extent nurses may experience some positive life changes from some of their experiences as a nurse. Also, this study is interested in exploring your experiences as a new nurse, your beliefs about the world, how you cope with things, and what your social support is like.

Research studies have the potential to increase our knowledge on a subject. If you decide to participate in this study you will be asked to complete an online questionnaire after you have consented, then again 8 and 16 weeks later. After you complete the third questionnaire you will be finished with the study. The questionnaires will take about thirty minutes to complete and can be completed entirely online. The data from this study will be used for Michelle's dissertation.

I hope you will seriously considering participating in this study. If you have any questions, please feel free to contact Michelle Jesse (Study Coordinator) at (313-916-2523, email at mjesse1@hfhs.org) or Mary Schurk at schurkm@umsl.edu

I hope you will consider participating in this exciting study. If you are willing to participate, please click on the below internet link, which will open a consent page for the study. If after reading and reviewing the consent you are still willing to participate, please enter the below code when prompted. This is your personal code for the study. By entering the code you are consenting to participate in this study. Feel free to print out the page with the consent form for your records OR contact Michelle Jesse (313-916-2523, mjesse1@hfhs.org) and she will mail you a copy of the consent form.

Thank you for your time and consideration,

Michelle T. Jesse, MA
Mary Schurk, MSN, WHNP-BC

Link: https://www.surveymonkey.com/s/KCP7H5G

Study Code: [INDIVIDUAL STUDY CODE HERE]

# APPENDIX F: SITE C IRB APPROVED ELECTRONIC CONSENT FORM

World Assumptions, Posttraumatic Growth, and Contributing Factors in A Population of New Nurses

HSC Approval Number: 291774-1

Principal Investigator: Michelle T. Jesse, MA, Doctoral Candidate
PI's Phone Number: Office 313-916-2523

1. You are invited to participate in a research study conducted by Michelle T. Jesse, MA, Doctoral Candidate, and Mary Schurk, MSN, WHNP-BC, faculty advisor. The purpose of this research is to better understand how the profession of nursing can affect a person at the beginning of his/her career.

2. a) Your participation will involve completing study questionnaires via SurveyMonkey.com at three separate times: within the first weeks of your job as a newly licensed/registered nurse and again 8 and 16 weeks later. Study questionnaires will take about 30-60 minutes to complete each time. You will receive an email informing you when it is time to complete each survey with a random code specific to you. If you do not complete the survey within one to two weeks, you will receive an additional reminder email. You may choose not to answer any questions that you do not want to answer. Only study staff will see this information. Your supervisor will not know whether or not you decide to participate and will not see your responses to the questionnaires.

Approximately 35 newly licensed nurses may be involved in this research at the University of Missouri-St. Louis. This is a part of a larger multi-center study co-occurring at Wake Forest University Baptist Medical Center in Winston-Salem, NC, and Henry Ford Health System, Detroit, MI. Across all three sites; we plan to recruit 100 newly licensed nurses.

b) The amount of time involved in your participation will be 4 to 6 months in total which can be completed entirely online. The questionnaires will take about 30 to 60 minutes to complete at each time.

3. There are no known risks associated with this research.

4. There are no direct benefits for you participating in this study.

5. Your participation is voluntary and you may choose not to participate in this research study or withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or withdraw.

6. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication that may result from this study. In rare

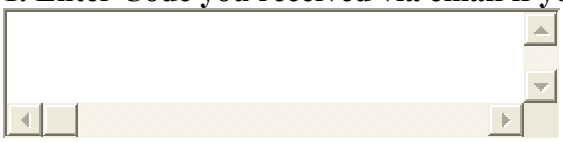
instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your data as well as any other information collected by the researcher.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Michelle T. Jesse (313-916-2523) or Mary Schurk (314-516-7026). You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at (314) 516-5899.

I have read this consent form and have been given the opportunity to ask questions. I understand that by entering in the code previously provided to me I am consenting to participate in the research above. I will be mailed a copy of this consent form for my records up my request. I hereby consent to my participation in the research described above.

*

**1. Enter Code you received via email if you are consenting to participate.**



Enter Code you received via email if you are consenting to participate.

Next

# APPENDIX G: SITE C EMAIL NOTIFICATION OF T2 AND T3 ASSESSMENTS

Dear [insert individual potential participant's name]

Approximately 8 weeks ago you agreed to participate in study on newly hired nurses and completed the initial questionnaire. It is time to complete the second questionnaire of the study! Please click on the below link and again enter the study code when prompted.

If you have any questions, please feel free to contact me, Michelle Jesse (Study Coordinator) at (313-916-2523) or email at mjesse1@hfhs.org, or Mary Schurk at schurkm@umsl.edu
Thank you for your continued participation,

Michelle T. Jesse, MA
Mary Schurk, MSN, WHNP-BC

Link: https://www.surveymonkey.com/s/CPKJTLP

Study Code:[INDIVIDUAL STUDY CODE HERE]

---

Dear [insert individual participant's name]

Approximately 16 weeks ago you agreed to participate in study on newly hired nurses and you have completed the initial and second questionnaire. It is time to complete the third and final questionnaire of the study! Please click on the below link and again enter the study code when prompted.

If you have any questions, please feel free to contact me, Michelle Jesse (principal investigator) at 313-916-2523 or email at mjesse1@hfhs.org.
Thank you for your continued participation,

Michelle T. Jesse, MA

Link: https://www.surveymonkey.com/s/RRZS5WV

Study Code: [INDIVIDUAL STUDY CODE HERE]

---

# APPENDIX H: SITE C T2 AND T3 REMINDER EMAILS

Dear [insert individual participant's name]

Approximately 1 to 2 weeks ago you received an email to complete the second questionnaire of the study "World Assumptions, Posttraumatic Growth, and Contributing Factors in a Population of New Nurses" Based upon our records, you have not yet completed the second survey. We understand that you are very busy and we very much appreciate your time and effort in this pursuit. Please click on the below link and again enter the study code when prompted.

If you have any questions, please feel free to contact me, Michelle Jesse (Study Coordinator) at (313-916-2523) or email at mjesse1@hfhs.org, or Mary Schurk at schurkm@umsl.edu
Thank you for your continued participation,

Michelle T. Jesse, MA
Mary Schurk, MSN, WHNP-BC

Link: https://www.surveymonkey.com/s/CPKJTLP

Study Code: [INDIVIDUAL STUDY CODE HERE]

---

Dear [insert individual potential participant's name]

Approximately 1 to 2 weeks ago you received an email to complete the third and final questionnaire of the study "World Assumptions, Posttraumatic Growth, and Contributing Factors in a Population of New Nurses" Based upon our records, you have not yet completed the second survey. We understand that you are very busy and we very much appreciate your time and effort in this pursuit. Please click on the below link and again enter the study code when prompted.

If you have any questions, please feel free to contact me, Michelle Jesse (Study Coordinator) at (313-916-2523) or email at mjesse1@hfhs.org, or Mary Schurk at schurkm@umsl.edu
Thank you for your continued participation,

Michelle T. Jesse, MA
Mary Schurk, MSN, WHNP-BC

Link: https://www.surveymonkey.com/s/RRZS5WV

Study Code: [INDIVIDUAL STUDY CODE HERE]

APPENDIX I: T1 DEMOGRAPHICS AND NURSING SPECIFIC VARIABLES

**The next few questions about your background are important to help describe, *in general terms*, people who are part of this study.**

1. Age _____ years

2. Gender (**Mark the one that best describes you)** ☐Male ☐Female

3. What is your current marital status? **(Mark the one that best describes you.)**
   - ☐1 Never married
   - ☐2 Divorced or separated
   - ☐3 Widowed
   - ☐4 Presently married

4. Are there any children currently living in the household you reside in? ☐Yes ☐No
   a. If yes, please list the ages of the children : _____

5. Do you consider yourself to be Hispanic or Latino? (See definition below.) Select one. ***Hispanic or Latino.*** A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless or race. The term, "Spanish origin," can be used in addition to "Hispanic or Latino."
   - ☐0 **Not Hispanic or Latino**
   - ☐1 **Hispanic or Latino**

6. What race do you consider yourself to be? Select one or more of the following.
   - ☐1 ***American Indian or Alaska Native.*** A person having origins in any of the original peoples of North, Central, **or** South America, and who maintains tribal affiliation or community attachment.
   - ☐2 ***Asian.*** A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. (Note: Individuals from the Philippine Islands have been recorded as Pacific Islanders in previous data collection strategies).
   - ☐3 ***Black or African American***. A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black" or "African American".
   - ☐4 ***White.*** A **person** having origins in any of the original peoples of Europe, the Middle East, or North Africa.
   - ☐5 Check here if you do not wish to provide some or all of the above information.

7. What was the total family income (before taxes) from all sources within your household in the last year? **(Mark the one that is the best guess. This information is important for describing the people in the study as a group and is kept <u>strictly confidential</u>.)**
   - ☐Y1 Less than $10,000
   - ☐Y2 $10,000 to $19,999
   - ☐Y3 $20,000 to $34,999
   - ☐Y4 $35,000 to $49,999
   - ☐Y5 $50,000 to $74,999
   - ☐Y6 $75,000 to $99,999
   - ☐Y7 $100,000 to $149,999
   - ☐Y8 $150,000 or more
   - ☐Y9 Don't know

8. Are you currently a member of a church, a synagogue or another such religious organization?
   - ☐ No
   - ☐ Yes

9. How often, if at all, do you attend religious services?
   - ☐1. more than once a week
   - ☐2. about once a week
   - ☐3. several times a month
   - ☐4. about once a month
   - ☐5. several times a year
   - ☐6. once a year or less
   - ☐7. never

10. How important would you say religion is in your life?
    - ☐1. very important
    - ☐2. somewhat important
    - ☐3. not very important
    - ☐4. not at all important

11. What would you say your religion is (e.g., Roman Catholic, Baptist, etc.)?

    _____

12. What is your nursing specialty?

    ☐ NICU ☐ Hospice Other: _____
    ☐ Hemodialysis ☐ Hematology/Oncology
    ☐ TBI Group ☐ Air care group

13. What unit/floor are you working on? _____
14. Are you a newly licensed nurse? Yes_____ No_____
15. Is this your first job as a nurse? Yes_____ No_____

# APPENDIX J: T2 AND T3 NURSING SPECIFIC VARIABLES

1. What is your current nursing specialty?
   ☐ NICU ☐ Hospice ☐ Other: ____
   ☐ Hemodialysis ☐ Hematology/Oncology
   ☐ TBI Group ☐ Air care group

2. What unit/floor are you working on? _____

3. How many, on average, hours per week have you worked in the past month? _____

4. What has typically (more often than not) been your shift schedule?
   ☐ 7AM to 7PM ☐ 7PM to 7AM ☐ Other:_____

5. During a normal shift, how many patients do you have primary responsibility for:____

6. How many patients that you would consider 'your patients' or have played a significant role in their care have died in the past two months? _____

7. Please list the top three most difficult/stressful events that they have experienced at work over the past two months and rate how difficult/stressful these events were:

   a. _____

   0 1 2 3 4 5 6 7 8 9 10
   Not at all difficult/ stressful — As difficult/ stressful as you can imagine

   b. _____

   0 1 2 3 4 5 6 7 8 9 10
   Not at all difficult/ stressful — As difficult/ stressful as you can imagine

   c. _____

   0 1 2 3 4 5 6 7 8 9 10
   Not at all difficult/ stressful — As difficult/ stressful as you can imagine

# APPENDIX K: ASSESSMENT MEASURES

## Posttraumatic Growth Inventory (PTGI)

Indicate for each of the statements below the degree to which this change occurred in your life as a result of your experience as a nurse**,** using the following scale.

0= I did not experience this change as a result of my time as a nurse.
1= I experienced this change to a very small degree as a result of my time as a nurse.
2= I experienced this change to a small degree as a result of my time as a nurse.
3= I experienced this change to a moderate degree as a result of my time as a nurse.
4= I experienced this change to a great degree as a result of my time as a nurse.
5= I experienced this change to a very great degree as a result of my time as a nurse.

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. I changed my priorities about what is important in life. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. I have a greater appreciation for the value of my own life. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. I developed new interests. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. I have a greater feeling of self-reliance. | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. I have a better understanding of spiritual matters. | 0 | 1 | 2 | 3 | 4 | 5 |
| 6. I more clearly see that I can count on people in times of trouble. | 0 | 1 | 2 | 3 | 4 | 5 |
| 7. I established a new path for my life. | 0 | 1 | 2 | 3 | 4 | 5 |
| 8. I have a greater sense of closeness with others. | 0 | 1 | 2 | 3 | 4 | 5 |
| 9. I am more willing to express my emotions. | 0 | 1 | 2 | 3 | 4 | 5 |
| 10. I know better that I can handle difficulties. | 0 | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11. I am able to do better things with my life. | 0 | 1 | 2 | 3 | 4 | 5 |
| 12. I am better able to accept the way things work out. | 0 | 1 | 2 | 3 | 4 | 5 |
| 13. I can better appreciate each day. | 0 | 1 | 2 | 3 | 4 | 5 |
| 14. New opportunities are available which wouldn't have been otherwise. | 0 | 1 | 2 | 3 | 4 | 5 |
| 15. I have more compassion for others. | 0 | 1 | 2 | 3 | 4 | 5 |
| 16. I put more effort into my relationships. | 0 | 1 | 2 | 3 | 4 | 5 |
| 17. I am more likely to try to change things which need changing. | 0 | 1 | 2 | 3 | 4 | 5 |
| 18. I have a stronger religious faith. | 0 | 1 | 2 | 3 | 4 | 5 |
| 19. I discovered that I'm stronger than I thought I was. | 0 | 1 | 2 | 3 | 4 | 5 |
| 20. I learned a great deal about how wonderful people are. | 0 | 1 | 2 | 3 | 4 | 5 |
| 21. I better accept needing others. | 0 | 1 | 2 | 3 | 4 | 5 |

## Brief COPE

These items deal with ways you've been coping with the stress in your life. There are many ways to try to deal with problems. These items ask what you've been doing to cope with stressful events. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

| | **I haven't been doing this at all** | **I've been doing this a little bit** | **I've been doing this a medium amount** | **I've been doing this a lot** |
|---|---|---|---|---|
| I've been turning to work or other activities to take my mind off things. | 1 | 2 | 3 | 4 |
| I've been concentrating my efforts on doing something about the situation I'm in. | 1 | 2 | 3 | 4 |
| I've been saying to myself "this isn't real." | 1 | 2 | 3 | 4 |
| I've been using alcohol or other drugs to make myself feel better | 1 | 2 | 3 | 4 |
| I've been giving up trying to deal with it. | 1 | 2 | 3 | 4 |
| I've been taking action to try to make the situation better. | 1 | 2 | 3 | 4 |
| I've been refusing to believe that it has happened. | 1 | 2 | 3 | 4 |
| I've been saying things to let my unpleasant feelings escape. | 1 | 2 | 3 | 4 |
| I've been using alcohol or other drugs to help me get through it. | 1 | 2 | 3 | 4 |
| I've been trying to see it in a different light, to make it seem more positive. | 1 | 2 | 3 | 4 |
| I've been criticizing myself. | 1 | 2 | 3 | 4 |
| I've been trying to come up with a strategy about what to do. | 1 | 2 | 3 | 4 |
| I've been giving up the attempt to cope. | 1 | 2 | 3 | 4 |
| I've been looking for something good in what is happening. | 1 | 2 | 3 | 4 |
| I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping. | 1 | 2 | 3 | 4 |
| I've been expressing my negative feelings. | 1 | 2 | 3 | 4 |
| I've been thinking hard about what steps to take. | 1 | 2 | 3 | 4 |
| I've been blaming myself for things that happened. | 1 | 2 | 3 | 4 |

**Core Beliefs Inventory (CBI)**

Some events that people experience are so powerful that they 'shake their world' and lead them to seriously examine core beliefs about the world, other people, themselves and their future. Please reflect upon your time as a nurse over the past few months and indicate the extent to which it led you to seriously examine each of the following core beliefs.

| | Not at all | To a very small degree | To a small degree | To a moderate degree | To a great degree | To a very great degree |
|---|---|---|---|---|---|---|
| 1. Because of the event, I seriously examined the degree to which I believe things that happen to people are fair. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. Because of the event, I seriously examined the degree to which I believe things that happen to people are controllable. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. Because of the event, I seriously examined my assumptions concerning why other people think and behave the way that they do. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. Because of the event, I seriously examined my beliefs about my relationships with other people. | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. Because of the event, I seriously examined my beliefs about my own abilities, strengths and weaknesses. | 0 | 1 | 2 | 3 | 4 | 5 |
| 6. Because of the event, I seriously examined my beliefs about my expectations for my future. | 0 | 1 | 2 | 3 | 4 | 5 |
| 7. Because of the event, I seriously examined my beliefs about the meaning of my life. | 0 | 1 | 2 | 3 | 4 | 5 |
| 8. Because of the event, I seriously examined my spiritual or religious beliefs. | 0 | 1 | 2 | 3 | 4 | 5 |
| 9. Because of the event, I seriously examined my beliefs about my own value or worth as a person. | 0 | 1 | 2 | 3 | 4 | 5 |

**Multidimensional Scale of Perceived Social Support**

Please circle the number of the response that most closely represents your experience.

| | Very strongly disagree | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | Very strongly agree |
|---|---|---|---|---|---|---|---|
| 1. There is a special person who is around when I am in need. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. There is a special person with whom I can share my joys and sorrows. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. My family really tries to help me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I get the emotional help and support I need from my family | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I have a special person who is a real source of comfort for me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. My friends really try to help me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. I can count on my friends when things go wrong. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. I can talk about my problems with my family. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I have friends with whom I can share my joys and sorrows. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. There is a special person in my life who cares about my feelings. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. My family is willing to help me make decisions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. I can talk about my problems with my friends. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

## Job Content Questionnaire[1]

Please respond once (putting a check in the corresponding circle) to the following statements using the five choices.

| | Strongly disagree | Disagree | Agree | Strongly agree | I have no supervisor |
|---|---|---|---|---|---|
| 1. My supervisor is concerned about the welfare of those under him or her. | 1 | 2 | 3 | 4 | 8 |
| 2. My supervisor pays attention to what I am saying. | 1 | 2 | 3 | 4 | 8 |
| 3. I am exposed to hostility or conflict from my supervisor. | 1 | 2 | 3 | 4 | 8 |
| 4. My supervisor is helpful in getting the job done. | 1 | 2 | 3 | 4 | 8 |
| 5. My supervisor is successful in getting people to work together. | 1 | 2 | 3 | 4 | 8 |
| 6. People I work with take a personal interest in me. | 1 | 2 | 3 | 4 | 8 |
| 7. I am exposed to hostility or conflict from the people I work with. | 1 | 2 | 3 | 4 | 8 |
| 8. People I work with are friendly. | 1 | 2 | 3 | 4 | 8 |
| 9. People I work with encourage each other to work together. | 1 | 2 | 3 | 4 | 8 |
| 10. People I work with are helpful in getting the job done. | 1 | 2 | 3 | 4 | 8 |

[1] Reproduced with permission from Robert Karasek, Ph.D. (Robert_Karasek@uml.edu). For use of this instrument, please contact the Job Content Questionnaire Center www.jcqcenter.org, jcqcenter@uml.edu, or telephone (978) 934-3348.

**Nursing Stress Scale (NSS)**

Below is a list of situations that commonly occur on a hospital unit. For each item indicate by means of a check (✓) of how *often* on your present unit you have found the situations to be *stressful.* Your responses are strictly confidential.

| | Never | Occasionally | Frequency | Very Frequently |
|---|---|---|---|---|
| 1. Breakdown of a computer | 0 | 1 | 2 | 3 |
| 2. Criticism by a physician | 0 | 1 | 2 | 3 |
| 3. Performing procedures that patients experience as painful | 0 | 1 | 2 | 3 |
| 4. Feeling helpless in the case of a patient who fails to improve | 0 | 1 | 2 | 3 |
| 5. Conflict with a supervisor | 0 | 1 | 2 | 3 |
| 6. Listening or talking to a patient about his/her approaching death | 0 | 1 | 2 | 3 |
| 7. Lack of an opportunity to talk openly with other unit personnel about problems on the unit | 0 | 1 | 2 | 3 |
| 8. The death of a patient | 0 | 1 | 2 | 3 |
| 9. Conflict with a physician | 0 | 1 | 2 | 3 |
| 10. Fear of making a mistake in treating a patient | 0 | 1 | 2 | 3 |
| 11. Lack of an opportunity to share experiences and feelings with other personnel on the unit | 0 | 1 | 2 | 3 |
| 12. The death of a patient with whom you developed a close relationship | 0 | 1 | 2 | 3 |
| 13. Physician not being present when a patient dies | 0 | 1 | 2 | 3 |
| 14. Disagreement concerning the treatment of a patient | 0 | 1 | 2 | 3 |
| 15. Feeling inadequately prepared to help with the emotional needs of a patient's family | 0 | 1 | 2 | 3 |
| 16. Lack of opportunity to express to other personnel on the unit my negative feelings toward patients | 0 | 1 | 2 | 3 |
| 17. Inadequate information from a physician regarding the medical condition of a patient | 0 | 1 | 2 | 3 |
| 18. Being asked a question by a patient for which I do not have a satisfactory answer | 0 | 1 | 2 | 3 |
| 19. Making a decision concerning a patient when the physician is unavailable | 0 | 1 | 2 | 3 |
| 20. Floating to other units that are short-staffed | 0 | 1 | 2 | 3 |
| 21. Watching a patient suffer | 0 | 1 | 2 | 3 |
| 22. Difficulty in working with a particular nurse (or nurses) outside the unit | 0 | 1 | 2 | 3 |

| | | | | |
|---|---|---|---|---|
| 23. Feeling inadequately prepared to help with the emotional needs of a patient | 0 | 1 | 2 | 3 |
| 24. Criticism by a supervisor | 0 | 1 | 2 | 3 |
| 25. Unpredictable staffing and scheduling | 0 | 1 | 2 | 3 |
| 26. A physician ordering what appears to be inappropriate treatment for a patient | 0 | 1 | 2 | 3 |
| 27. Too many non-nursing tasks required, such as clerical work | 0 | 1 | 2 | 3 |
| 28. Not enough time to provide emotional support to a patient | 0 | 1 | 2 | 3 |
| 29. Difficulty in working with a particular nurse (or nurses) on the unit | 0 | 1 | 2 | 3 |
| 30. Not enough time to complete all of my nursing tasks | 0 | 1 | 2 | 3 |
| 31. A physician not being present in a medical emergency | 0 | 1 | 2 | 3 |
| 32. Not knowing what a patient or a patient's family ought to be told about the patient's condition and its treatment | 0 | 1 | 2 | 3 |
| 33. Uncertainty regarding the operation and functioning of specialized equipment | 0 | 1 | 2 | 3 |
| 34. Not enough staff to adequately cover the unit | 0 | 1 | 2 | 3 |

**Positive And Negative Affect Scale (PANAS)**

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate number in the space next to the word. Indicate to what extent you have felt this way **during the past few weeks.**

| | **Very slightly or not at all** | **A little** | **Moderately** | **Quite a bit** | **Extremely** |
|---|---|---|---|---|---|
| 1. Distressed | 1 | 2 | 3 | 4 | 5 |
| 2. Excited | 1 | 2 | 3 | 4 | 5 |
| 3. Upset | 1 | 2 | 3 | 4 | 5 |
| 4. Scared | 1 | 2 | 3 | 4 | 5 |
| 5. Enthusiastic | 1 | 2 | 3 | 4 | 5 |
| 6. Alert | 1 | 2 | 3 | 4 | 5 |
| 7. Inspired | 1 | 2 | 3 | 4 | 5 |
| 8. Nervous | 1 | 2 | 3 | 4 | 5 |
| 9. Determined | 1 | 2 | 3 | 4 | 5 |
| 10. Afraid | 1 | 2 | 3 | 4 | 5 |

**Satisfaction With Life Scale (SWLS)**

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by circling the appropriate number on that item. Please be open and honest in your responding

| | Strongly Disagree | Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|
| 1. In most ways my life is close to ideal. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The conditions of my life are excellent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I am satisfied with my life | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. So far I have gotten the important things I want in life. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. If I could live my life over, I would change almost nothing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**World Assumptions Scale (WAS)**

These statements are about the assumptions you have concerning how things occur in the world. Use the rating scale below to indicate how well each statement describes your beliefs. Circle the number under each statement that best describes you disagreement or agreement with each.

| | Thoroughly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1. Misfortune is least likely to strike worthy, decent people. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. People are naturally unfriendly and unkind. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. Bad events are distributed to people at random. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. Human nature is basically good. | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. The good things that happen in this world far outnumber the bad. | 0 | 1 | 2 | 3 | 4 | 5 |
| 6. The course of our lives is largely determined by chance. | 0 | 1 | 2 | 3 | 4 | 5 |
| 7. Generally, people deserve what they get in this world. | 0 | 1 | 2 | 3 | 4 | 5 |
| 8. I often think I am no good at all. | 0 | 1 | 2 | 3 | 4 | 5 |
| 9. There is more good than evil in the world. | 0 | 1 | 2 | 3 | 4 | 5 |
| 10. I am basically a lucky person. | 0 | 1 | 2 | 3 | 4 | 5 |
| 11. People's misfortune result from mistakes they have made. | 0 | 1 | 2 | 3 | 4 | 5 |
| 12. People don't really care what happens to the next person. | 0 | 1 | 2 | 3 | 4 | 5 |
| 13. I usually behave in ways that are likely to maximize good results for me. | 0 | 1 | 2 | 3 | 4 | 5 |
| 14. People will experience good fortune if they themselves are good. | 0 | 1 | 2 | 3 | 4 | 5 |
| 15. Life is too full of uncertainties that are determined by chance. | 0 | 1 | 2 | 3 | 4 | 5 |
| 16. When I think about it, I consider myself very lucky. | 0 | 1 | 2 | 3 | 4 | 5 |
| 17. I almost always make an effort to prevent bad things from happening to me. | 0 | 1 | 2 | 3 | 4 | 5 |
| 18. I have a low opinion of myself. | 0 | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 19. By and large, good people get what they deserve in this world. | 0 | 1 | 2 | 3 | 4 | 5 |
| 20. Through our actions we can prevent bad things from happening to us. | 0 | 1 | 2 | 3 | 4 | 5 |
| 21. Looking at my life, I realize that chance events have worked out well for me. | 0 | 1 | 2 | 3 | 4 | 5 |
| 22. If people took preventive actions, most misfortune could be avoided. | 0 | 1 | 2 | 3 | 4 | 5 |
| 23. I take the actions necessary to protect myself against misfortune. | 0 | 1 | 2 | 3 | 4 | 5 |
| 24. In general, life is mostly a gamble. | 0 | 1 | 2 | 3 | 4 | 5 |
| 25. The world is a good place. | 0 | 1 | 2 | 3 | 4 | 5 |
| 26. People are basically kind and helpful. | 0 | 1 | 2 | 3 | 4 | 5 |
| 27. I usually behave so as to bring about the greatest good for me | 0 | 1 | 2 | 3 | 4 | 5 |
| 28. I am very satisfied with the kind of person I am. | 0 | 1 | 2 | 3 | 4 | 5 |
| 29. When bad things happen, it is typically because people have not taken the necessary actions to protect themselves. | 0 | 1 | 2 | 3 | 4 | 5 |
| 30. If you look closely enough, you will see that the world if full of goodness. | 0 | 1 | 2 | 3 | 4 | 5 |
| 31. I have reason to be ashamed of my personal character. | 0 | 1 | 2 | 3 | 4 | 5 |
| 32. I am luckier than most people. | 0 | 1 | 2 | 3 | 4 | 5 |