Women's Cognitive Appraisals of Their Birth Experience as Predictive and Maintaining Factors of Postpartum Posttraumatic Stress Symptom Severity

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WOMEN’S COGNITIVE APPRAISALS OF THEIR BIRTH EXPERIENCE AS PREDICTIVE AND MAINTAINING FACTORS OF POSTPARTUM POSTTRAUMATIC STRESS SYMPTOM SEVERITY

by

Lauren Carr Spooner

Abstract of a Dissertation
Submitted to the Graduate School of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

December 2011
ABSTRACT

WOMEN’S COGNITIVE APPRAISALS OF THEIR BIRTH EXPERIENCES AS PREDICTIVE AND MAINTAINING FACTORS OF POSTPARTUM POSTTRAUMATIC STRESS SYMPTOM SEVERITY

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Empirical support has accumulated for evidence of posttraumatic stress symptoms following approximately 30% of childbirth experiences (Olde, van der Hart, Kleber, & van Son, 2006). Researchers have suggested that there is a complex relationship among predisposing, precipitating, and maintaining factors that impact postpartum PTSD (Slade, 2006). Anxiety, perception of support, and negative cognitions are such factors that have been shown to significantly correlate with PTSD symptoms (Foa & Rothbaum, 1998; Olde et al., 2006; Soet, Brack, & Dilorio, 2003), but have not been studied together in relation to PTSD associated with traumatic birth. The current study controlled for trait anxiety to examine the effect of negative cognitions following birth on the perception of medical staff support. It was hypothesized that perceptions of poor medical staff support and negative cognitions regarding the self and the world would be positively correlated with postpartum PTSD symptoms. It was also hypothesized that specific negative cognitions about the self and the world would moderate and mediate the relationship between the perception of poor medical staff support and symptoms of postpartum PTSD. Results indicated that perceptions of poor medical staff support and negative cognitions about the self and the world were significantly and positively correlated with greater
PTSD symptom severity. Additionally, negative cognitions about the self and the world both moderated and partially mediated the relationship between poor staff support and greater PTSD symptom severity. Research on identifying negative cognitions uniquely associated with postpartum PTSD and improving ways to lessen the impact of event characteristics such as poor medical staff support would be beneficial as a means of preventing or minimizing stress reactions in perinatal women. Given that a traumatic birth experience can have far-reaching, long-lasting, and grim consequences for women and their families, the optimal psychological health of perinatal and postnatal women should be an area of judicious attention for medical and mental health professionals.
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A Dissertation 
Submitted to the Graduate School 
of The University of Southern Mississippi 
in Partial Fulfillment of the Requirements 
for the Degree of Doctor of Philosophy 

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In honor of my mother, Pauline Sowell Carr, I acknowledge her deeply held regard for education and I aspire to pass it along in kind. Last, but most important, I express my deepest gratitude and admiration to my husband, Wade, for sharing my vision of earning a doctoral degree. He sacrificed much, but never complained.
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CHAPTER I
LITERATURE REVIEW

Childbirth is a significant, life-changing event in the lives of women and involves an interaction of physiological, psychological, relational, and environmental factors. Across cultures, motherhood is seen primarily as a fulfilling and satisfying experience; however, a growing body of researchers have proposed that there is a vulnerability to psychopathology associated with difficulties giving birth (Ayers & Pickering, 2001; Ayers, Joseph, McKenzie-McHarg, Slade, & Wijma, 2008; Creedy, Shochet, & Horsfall, 2000; Czarnocka & Slade, 2000; Evans, Heron, Francomb, Oke, & Golding, 2001; Johanson, Chapman, Murray, Johnson, & Cox, 2000; Joseffsson, Berg, Nordin, & Sydsjo, 2001; O’Hara & Swain, 1996; Olde et al., 2006; Soet et al., 2003; Wijma, Soderquist, & Wijma, 1997). Specifically, researchers have found that postpartum depression (PPD) and postpartum posttraumatic stress disorder (postpartum PTSD) are common negative sequelae of a difficult birth experience for many women (Czarnocka & Slade; O’Hara & Swain). Although there is high comorbidity between depression and PTSD in the general population (Brown, Campbell, Lehman, Grisham, & Mancill, 2001), few researchers have investigated posttraumatic stress in the postpartum period (Czarnocka & Slade; White, Matthey, Boyd, & Barnett, 2006) and relatively few studies have included United States samples.

A large amount of research has been devoted to studying PPD, yet the study of postpartum PTSD is relatively new. Given this general lack of awareness, health care providers might readily identify PPD, but fail to accurately identify symptoms of postpartum PTSD. Furthermore, screening for PTSD has not routinely been a part of the postpartum examination process as has PPD. The personal, relational, and societal impact
of postpartum PTSD can be significant in the lives of new mothers. Therefore, there are important implications for effective treatment in properly identifying posttraumatic symptoms and distinguishing them from depression (Herman, 1992; White et al., 2006).

There is empirical evidence supporting three categories of etiological factors that are associated with the development of postpartum PTSD: (a) predisposing (antenatal) factors that are present before or during pregnancy, but before the beginning of labor, (b) precipitating (perinatal) factors or event characteristics that occur during the labor and delivery experience, and (c) maintaining (postnatal) factors that influence the development and persistence of PTSD following the birth event. These factors can present as individual or environmental characteristics or as a combination of both.

PTSD is classified as an anxiety disorder as there are fundamental components of anxiety in the cognitive, behavioral, and physiological symptoms of PTSD. Trait anxiety, which measures stable, individual anxiety proneness is a predisposing personal vulnerability factor associated with postpartum PTSD and is the “most frequently studied personality trait in childbirth related studies” (Olde et al., 2006, p. 10). Although personality variables may be associated with stress responses following a traumatic event, not all of those who experience a stress response will go on to develop PTSD. Therefore, there are likely additional contributing or moderating factors.

Revealed in a large body of literature is the notion that not only the event itself, but a person’s cognitive appraisal of a stressful event, leads to psychological and physiological distress (Creedy et al., 2000; Czarnocka & Slade, 2000; Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Lazarus & Folkman, 1984; Ryding, Wijma, & Wijma, 1998a). The appraisal or perception of poor support from medical staff during the birth process has been shown to be a significant precipitating predictor of postpartum PTSD.
Examples of poor support from medical staff include receiving inadequate information, experiencing little involvement in decision-making, and experiencing limited choices (Czarnocka & Slade; Mason & Rice, 2005; Soet et al., 2003; Tarkka & Paunonen, 1996; Wijma et al., 1997). Interestingly, researchers as early as the 1970s have asserted that feelings of being an active participant in the birth process, rather than simply an object of care, are associated with positive birth experiences for women (Davenport-Slack & Boylan, 1974; Willmuth, 1975). Most studies investigating poor support from medical staff have involved samples from several Western societies, whereas to date, only two studies have examined medical support in United States samples (Beck, 2004; Soet et al.). Given that the expectations and beliefs surrounding childbirth are influenced greatly by one’s sociocultural environment, results of such studies from other Western societies may not generalize well to United States samples.

According to cognitive models of trauma, an individual’s negative appraisal following a traumatic event will increase his or her subjective perception of threat and risk, thus contributing to the development and maintenance of posttraumatic stress symptoms (Foa & Rothbaum, 1998). The majority of the current trauma literature focuses on specific types of negative cognitions – those about the self and the world (Foa & Rothbaum). Unlike predisposing and precipitating factors, maintaining factors for postpartum PTSD have received very little empirical attention in the literature. Furthermore, there are no known studies to date that have examined cognitive appraisals involving the self and the world following childbirth as they relate to PTSD symptoms.

In the current study the researcher examined women’s postpartum cognitive appraisals of their birth experience in relation to symptoms of postpartum PTSD. The researcher also investigated the relationship between these cognitive appraisals and the
mother’s perception of medical staff support during the birthing process. It was hypothesized that perceptions of poor support combined with negative appraisals following the birth, while controlling for trait anxiety, would be related to symptoms of postpartum PTSD.

A History of the Conceptualization of Psychological Trauma

Trauma became a focus of serious inquiry beginning in the late nineteenth century due to increasing interest in symptoms of hysteria among women. An early precursor to traumatic response, the term hysteria was first used by Hippocrates and was a condition associated exclusively with women and thought to be caused by disturbances of the uterus (King, 1998). Hysteria was described as a state of mind that included excessive fear, emotionality, and psychosomatic complaints.

Hysteric women were historically thought to be malingers. However, in the late nineteenth century, Jean-Martin Charcot, a well-known French neurologist, applied scientific investigation to the phenomena of hysteria and proposed that its origin was psychological and related to an individual’s history of trauma (Charcot, 1887, as cited in van der Kolk, Weisaeth, and van der Hart, 1996; Drinka, 1984). Pierre Janet, inspired by Charcot, suggested that categorizing and integrating subconscious memories of traumatic events could enable the individual to cope better (van der Kolk & van der Hart, 1989). Further, Janet suggested that the memories of the trauma would linger in the form of anxiety reactions as long as they had not been transferred into personal awareness and a personal narrative (Janet, 1930/1961). Sigmund Freud and Josef Breuer developed similar views and in their book, Studies on Hysteria, proposed that hysterics were fixated on the memory of traumatic events (Breuer & Freud, 1955).
Following the horrors of World War I, British military psychiatrist Charles Myers was among the first to recognize that men involved in combat developed symptoms similar to neurosis in women. Meyers used the term shell shock to describe the intense and prolonged emotional distress from combat (Myers, 1940). With the advent of World War II, American psychiatrist Abram Kardiner, in *The Traumatic Neuroses of War*, focused on conditioned biological responses to trauma and on the idea that the soldier’s conception of himself and his world had been altered by the trauma (Kardiner, 1941).

Mardi Horowitz (1986), in *Stress Response Syndromes*, linked war trauma to trauma in the general population, providing the impetus for an expanded understanding of trauma and its devastating psychological effects. Also greatly influencing the expanded understanding of trauma was the social and political climate during the 1970s, which provided a context that fostered growth in the field. Specifically, recognized during that time were syndromes characterized by clusters of emotional and behavioral responses similar to all types of posttraumatic stress disorder. Examples are the “battered woman syndrome” (Walker, 1979, p. 19), the “rape trauma syndrome” (Burgess & Holmstrom, 1974, p. 981), and the “battered child syndrome” (Kempe, Silverman, Steele, Droegemueller, & Silver, 1985, p. 143).

*PTSD Diagnostic Criteria*

The official diagnosis of PTSD was associated with the study of male Vietnam war veterans from the United States in 1980, at which time it was first entered into the Diagnostic and Statistical Manual of Mental Disorders – Third Edition (American Psychiatric Association, 1980; DSM-III). According to the most recent Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition – Text Revised (American Psychiatric Association, 2000; DSM-IV-TR), PTSD is characterized by six main features.
First, the person has a history of exposure to a traumatic event in which there was the threat of death or serious injury to self or others and in which the person responded with intense fear, helplessness or horror. The first criterion in the DSM-III specified that the person must have a history of exposure to “an event that is outside the range of usual human experience” (American Psychiatric Association, 1980, p. 263). Therefore, childbirth, which is within the range of usual experiences for half of the population, would not have been considered a traumatic stressor. In the DSM-IV (American Psychiatric Association, 1994), the restrictive criterion regarding the range of human experience was eliminated.

The next DSM-IV-TR criteria include three main categories of symptoms: (a) intrusion, in which the traumatic memories are manifested in flashbacks or nightmares, resulting in repeated interruption of life, (b) avoidance, which is characterized by numbing and detached states of consciousness, and (c) hyperarousal, a chronic arousal of the autonomic nervous system resulting in a prominent startle response, irritability, and difficulty with concentration and sleep. The symptoms must be present for more than one month and must cause significant distress or impairment in functioning in important areas of life including family and work. Symptoms present for less than one month indicate the diagnosis of acute stress reaction. Three subtypes of PTSD are: (a) the acute subtype in which symptoms last less than three months, (b) the chronic subtype in which symptoms last more than three months, and (c) delayed onset in which the onset of symptoms is delayed until at least six months following the stressor (American Psychiatric Association, 2000).

Numerous psychological theories exist which account for the development and maintenance of PTSD (Cahill & Foa, 2007). Incorporated into all of the models is the
presence of intrusive, recollections of the traumatic event accompanied by active avoidance of the reminders as a means of maladaptive coping. Failure to process the trauma, leads to a chronic intrusion and avoidance cycle, which is the hallmark characteristic of PTSD. Further, a large body of literature provides evidence that in addition to the event itself, a person’s cognitive appraisal (or meaning that they make of the traumatic event) is associated with the development and maintenance of PTSD (Ehlers & Clark, 2000; Foa, Steketee, & Rothbaum, 1989; Green, Wilson, & Lindy, 1985; Horowitz, 1986). This selective retrieval of catastrophic and maladaptive cognitions is thought to also perpetuate postpartum PTSD symptoms and will be investigated in the current study.

*Prevalence Estimates of Posttraumatic Stress Disorder*

In the general United States population, the lifetime prevalence estimate of PTSD is about 8% with an additional 5 - 15% experiencing subclinical forms of the disorder (Sadock & Sadock, 2007). Gender differences include lifetime prevalence rates of 10 - 12% among women and 5 - 6% among men. According to the National Comorbidity Survey, violence is the most prevalent factor that leads to PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). For example, men more frequently experienced trauma resulting from combat, physical assaults, threats with a weapon, and being kidnapped or held captive. Women reported trauma more often resulting from rape, and childhood neglect and physical abuse. Prevalence rates of PTSD are higher among at-risk populations such as combat veterans (Kulka et al., 1990), inner city children (Silva et al., 2000), survivors of mass violence (Norris et al., 2002), crime (Brewin, Andrews, Rose, & Kirk, 1999), and disasters (McFarlane & Potts, 1999). Prevalence rates regarding the development of PTSD from traumatic childbirth experiences are reported below.
In summary, the conceptualization of psychological trauma has expanded greatly throughout history from a disorder associated exclusively with women to a disorder associated with many types of traumatic events generalized across age and gender. More recently, an increasing body of research has shown that a proportion of women can develop significant pathological traumatic reactions following childbirth (Czarnocka & Slade, 2000; O’Hara & Swain, 1996). It is important to note that many women view their birth experience as very positive and fulfilling, but for those who do not, the implications can negatively impact personal, relational, and societal functioning.

Postpartum Posttraumatic Stress

The vast majority of the research and health service provision has been focused on postpartum depression. More recently, researchers have identified symptoms of anxiety in the form of posttraumatic stress reactions among postpartum women (Olde et al., 2006). In the childbirth literature of the 1980s, examples can be found of women suffering from a negative psychological impact of the birth experience including stressful and disruptive memories of labor and delivery (Arizmendi & Affonso, 1987). Case studies in the 1990s indicate that a traumatic birth may be perceived similarly to known stressors such as war, natural disasters, physical assault, rape, serious accidents, and medical and surgical procedures (Ballard, Stanley, & Brockington, 1995). Subsequently, posttraumatic stress following childbirth has been studied internationally across the three continents of North America, Europe, and Australia for more than 10 years (Creedy et al., 2000; Soet et al., 2003; & Wijma et al., 1997).

In qualitative studies, childbirth for some women has been described as fearful, out of control, and horrifying and therefore, traumatic. For example, in their qualitative
study, Nicholls and Ayers (2007) recorded the following statements by research participants:

All I remember is disappearing into this spiraling, black abyss of pain. All I knew was the pain, I didn’t know anything else, that was it. The fact that there was going to be a baby at the end of all this had become completely and utterly irrelevant (p. 495). It was all out of my hands, I was afraid for me, I was afraid for my baby. I was just afraid that everything was just completely out of control. It didn’t feel like a birth, it felt like an emergency operation (p. 496).

In another qualitative study, Beck (2004) recorded this mother’s statement, “I am amazed that 3 ½ hours in the labor and delivery room could cause such utter destruction in my life. It truly was like being the victim of a violent crime or rape” (p. 32). Similar to the defining criteria of PTSD in the DSM-IV-TR, birth trauma is characterized by Beck as “an event occurring during the labor and delivery process that involves actual or threatened serious injury or death to the mother or her infant. The birthing woman experiences intense fear, helplessness, loss of control, and horror” (p. 28). In a qualitative study of women’s thoughts and emotions during birth, Ayers (2007) found that during labor and delivery, women’s “…thoughts of death are not always in response to objectively life-threatening situations and that women can be frightened that they might die without any medical reason or trigger” (p. 261). Furthermore, although postpartum PTSD has been associated with pregnancy loss, premature birth, stillbirth, and perinatal death, researchers have shown that normal deliveries (full term deliveries with healthy outcomes) can also lead to posttraumatic stress symptoms (Ayers & Pickering, 2001; Creedy et al., 2000). This is an important concept because in keeping with cultural stereotypes of motherhood being a positive experience, some women might be unwilling
to express dissatisfaction with birth, and/or posttraumatic stress symptoms, if they delivered a healthy baby. Thus, postpartum PTSD might be underreported and therefore, undiagnosed. Few studies have been conducted to investigate post delivery factors associated with the maintenance of postpartum PTSD. The current study will focus on women’s post delivery perceptions of their birth experience in relation to posttraumatic stress type symptoms. This study will include women’s experiences of childbirth regardless of the medical complications for themselves or their babies (with the condition that women carried their baby to at least 37 weeks, which is considered full term, and that their baby survived at least 24 hours following birth).

According to the DSM-IV-TR, a minimum of one intrusive symptom, three avoidance symptoms, and two hyperarousal symptoms must be present to meet full diagnostic criteria for PTSD. Several authors have suggested that there is clinical utility in embracing the concept of partial PTSD because clinically significant distress and/or impairment in life function can result from subclinical levels of posttraumatic stress in which only partial criteria are met (Leeds & Hargreaves, 2008; Mylle & Maes, 2002). To date, most studies on postpartum PTSD report incidences of full diagnostic criteria for PTSD, as defined by the DSM, as well as subclinical incidences (labeled partially symptomatic as defined by clinically significant scores on a PTSD measure in at least one of the three diagnostic areas described above). Such variability in the literature will be noted when applicable.

Prevalence Estimates of PTSD in Postpartum Women

Wijma et al. (1997) found that in a cross-sectional study of 1640 Swedish women, 1.7 % met full criteria for postpartum PTSD. Similarly, in Soet et al.’s (2003) United States sample of 103 women, 1.9% met full criteria. In England, Czarnocka and Slade
(2000) estimated a prevalence rate of 3% ($N = 264$), while Creedy et al. (2000) reported a rate of 5.6% among Australian women ($N = 499$) and Ayers and Pickering (2001) reported a rate of 6.9% among women in the United Kingdom ($N = 289$). Further, researchers have consistently found that a larger percentage of women, approximately one in three, appraise their birth experience as traumatic and will meet partial criteria for PTSD following childbirth (Creedy et al.; Czarnocka & Slade; Soet et al.). Results from multiple longitudinal studies in the general population indicate that PTSD can last for months, even decades (Kessler et al., 1995; Sutker & Allain, 1996). Soderquist, Wijma, and Wijma (2006) assessed for posttraumatic stress at 1, 4, 7, and 11 months postpartum and found that women do not spontaneously recover. In their sample of 1,224 women, sum-scores of posttraumatic stress measures did not decrease over time. Similarly, White et al. (2006) found that PTSD rates remained relatively stable during the postpartum period with prevalence rates of 2% at 6 weeks, 2.6% at 6 months, and 2.4% at 12 months. In contrast, Ayers and Pickering found a decline in the prevalence rate of postpartum PTSD ranging from 2.8% at 6 weeks postpartum to 1.5% at 6 months postpartum.

The vast majority of studies on postpartum PTSD have involved samples from Western societies other than the United States. Creamer (1995) suggests that the “way in which a traumatic event is appraised and interpreted may be largely influenced by cultural expectations and norms: what is traumatic for one culture may not be so for another” (p. 55). Therefore, postpartum PTSD test results and conclusions from one Western society may not generalize to another Western society. Based on this crucial understanding of cultural variability, more research is needed to investigate postpartum PTSD in United States samples.
Comorbidity Between Postpartum Depression and Postpartum Posttraumatic Stress

Three to five days following delivery, up to 80% of women experience dysphoria known as the baby blues, which typically abates within ten days of delivery (Beck, 2002). On the other hand, well-established prevalence estimates for PPD, which is more chronic and severe, are between 10–15% (O’Hara & Swain, 1996). PPD is characterized by symptoms of major depressive disorder with an onset of the episode occurring within four weeks postpartum and which may be accompanied by preoccupation with infant well-being ranging from over-concern to frank delusions (American Psychiatric Association, 2000).

Researchers have revealed high rates of comorbidity between postpartum PTSD and PPD (Czarnocka & Slade, 2000; White et al., 2006). Using the Edinburgh Postnatal Depression Scale (EPDS) and the Post-traumatic Stress Symptom Scale (PSS-SR), White et al. found at 6 weeks postpartum a strong positive correlation \( r = .63 \) between symptoms of PPD and postpartum PTSD. At 6 months and again at 7 months, the correlation between the two scales remained steady \( r = .70 \). These findings are similar to those regarding a high level of comorbidity among individuals with PTSD in the general population. For instance, Brown et al. (2001) assessed 1,126 community outpatients and found that of those diagnosed with PTSD, 92% met criteria for another Axis I disorder, most frequently major depressive disorder (77%).

Although there is considerable overlap of symptoms between PPD and postpartum PTSD, Czarnocka and Slade (2000) suggested that 25% of women who have symptoms consistent with postpartum PTSD, but without PPD, could remain undiagnosed because postpartum screening is typically conducted only for PPD. This is important because there are neurobiological alterations that are unique to postpartum
PTSD and thus, treatment procedures that are unique to PTSD. Proper diagnosis of postpartum PTSD is also important because of the deleterious personal, relational, and societal impact of ineffective treatment for its symptoms.

**Etiology of Postpartum Posttraumatic Stress Disorder Symptoms**

In addition to being female, predisposing vulnerability factors that contribute to the development of PTSD in the general population include a history of prior exposure to trauma, personality disorder traits, an inadequate support system, recent substance disorder, recent stressful life changes, and family history of psychopathology (Ozer, Best, Lipsey, & Weiss, 2003; Sadock & Sadock, 2007). One can predict that similar factors may contribute to the development of postpartum PTSD symptoms.

There is empirical evidence of many interacting etiological factors specific to the development of postpartum PTSD. Such etiology is organized into three categories: (a) predisposing (antenatal) factors that are present before or during pregnancy, but before the beginning of labor, (b) precipitating (perinatal) factors or event characteristics that occur during the labor and delivery experience, and (c) maintaining (postnatal) factors that influence the persistence of postpartum PTSD (Slade, 2006). These factors can present as individual or environmental characteristics or as a combination of both.

**Predisposing factors.** Empirical findings in the general stress literature indicate that PTSD is often comorbid with conditions such as substance abuse, major depression, and other anxiety disorders (McFarlane, 2000). In the postpartum PTSD literature, it has likewise been suggested that preexisting psychopathology can be associated with birth stress reactions (Soderquist et al., 2006; Wijma et al., 1997). For example, depression during pregnancy has been found to be an independent predictor of postpartum posttraumatic stress symptoms (Cohen, Ansara, Schei, Stuckless, & Stewart, 2004;
Maggioni, Margola, & Filippi, 2006; Soderquist et al., 2006). To the contrary, a regression analysis by Leeds and Hargreaves (2008) revealed that a previous mental health problem did not appear to be predictive of higher scores on a PTSD measure following childbirth. Individuals who already have a negative view of themselves and their world (characteristic of those with depression) are more likely to develop PTSD (Foa, Rothbaum, Riggs, & Murdock, 1991). It is important to note, however, that the causal relationship between depression and PTSD is unclear and that the relationship can be reciprocal and overlapping.

Some women develop tokophobia, a severe fear of childbirth, prior to delivery despite the desire to have a baby. Soderquist et al. (2006) assessed 1224 Swedish women in a longitudinal study and found there to be an association with this severe fear and an increased risk for developing postpartum posttraumatic stress symptoms. Hofberg and Brockington (2000) asserted that some women developed a fear of childbirth as a result of depression during pregnancy. These researchers also found that women with tokophobia who were denied their desired method of delivery had higher rates of psychological problems. Furthermore, women who have a severe fear of childbirth might be at greater risk of having an emergency cesarean section (Wijma, Ryding, & Wijma, 2002).

The personality trait neuroticism has been found to be associated with postpartum PTSD. Lyons (1998) indicated that mothers with higher neuroticism scores, as measured by the Eysenck Personality Inventory (EPI), used more negative affect descriptors on the McGill Pain Questionnaire (MPQ) following delivery and at one month postpartum. Lyons points out that these results are consistent with McFarlane’s (1989) findings of the significant association between neuroticism and high PTSD scores of those exposed to a
natural disaster as measured by the Impact of Event Scale (IES). Lyons suggests that women with this personality type might use more negative emotion when attributing meaning to events.

Empirical evidence has accumulated that shows that prior exposure to traumatic events is believed to increase the risk of developing PTSD following a later trauma (Shalev, 1996). Specific to gynecology, results from a Swedish study of women who had received traumatic gynecology procedures (excluding childbirth related procedures) suggested a relationship between this trauma history and PTSD (Menage, 1993). Moreover, specific to childbirth, a vaginal delivery might trigger memories of sexual abuse. Using a logistic regression, Soet et al. (2003) found that women with a history of sexual trauma were “12 times more likely to experience their childbirth event as traumatic” (p. 44). In contrast, Cohen et al. (2004) suggested that traumatic life events, along with a history of depression, but not factors related to labor and delivery, are more likely to be related to PTSD.

Trait anxiety, which measures stable, individual anxiety proneness, and which influences state (temporary) anxiety, is a personal vulnerability factor associated with postpartum PTSD. In a review of the literature, Olde et al. (2006) found that trait anxiety is the “most frequently studied personality trait in childbirth related studies” (p. 10). Czarnocka and Slade (2000) asserted that high trait anxiety among a British sample of postpartum women was the primary predictor for total scores on a measure for PTSD. Similarly, Soet et al. (2003), using the State-Trait Anxiety Inventory (STAI), found trait anxiety to be a significant predictor of postpartum PTSD in a United States sample. Conversely, high trait anxiety was not associated with an increased risk for postpartum PTSD in a study by Soderquist et al. (2006). Keogh, Ayers, & Francis (2002) measured a
similar construct, fear of anxiety-related sensations, using the Anxiety Sensitivity Index (ASI). Based on three subscales related to physical, social, and mental concerns, prenatal anxiety sensitivity was significantly correlated with postpartum PTSD. Moreover, gender differences in the neuroendocrine systems of women are thought to explain why “women are more likely than men to suffer delayed recovery from the deleterious consequences of stress” (Olff, Langeland, Draijer, & Gersons, 2007, p. 194). Specifically, women appear to be more sensitized to the activation of the stress response system including the hypothalamic-pituitary-adrenocortical (HPA) axis, which is associated with anxiety.

PTSD is characterized predominantly by anxiety symptoms and is classified as an anxiety disorder in the DSM-IV-TR. Therefore, it might be surmised that trait anxiety, is an important ingredient in the development and maintenance of PTSD. However, reviews of current knowledge of postpartum PTSD risk factors suggest that not only do within individual factors, such as trait anxiety influence PTSD symptoms, but a complex interaction with environmental factors do as well (Ayers, et al., 2008; Olde et al. 2006; Slade, 2006). The current study controlled for trait anxiety to examine specific precipitating and maintaining variables that are discussed in the following sections.

To summarize, personality characteristics and experiences prior to labor and delivery are among the predisposing factors that have been shown to predict postpartum PTSD symptoms. Specifically, these factors include neuroticism, trait anxiety, preexisting psychopathology, severe fear of childbirth, and prior trauma.

Precipitating factors. Events occurring during labor and delivery can also increase a woman’s risk for developing postpartum PTSD. A high level of obstetric intervention can lead to stress during the event that can influence a woman’s appraisal of the delivery. Obstetric intervention includes surgery, including elective and emergency
cesarean sections and instrument-assisted delivery, such as forceps, vacuum extraction, and episiotomies. In a study of nulliparous females, Fisher, Astbury, and Smith (1997) indicated that women who had undergone a cesarean section delivery had significantly deteriorated mood and diminished self-esteem afterwards compared to women who had experienced a vaginal birth. Regarding mode of delivery, additional studies have found the strongest association between emergency cesarean section deliveries and postpartum PTSD symptoms followed by vaginal deliveries then planned cesarean sections (Creedy et al., 2000; Ryding, Wijma, & Wijma, 1998c; Soderquist, Wijma, & Wijma, 2002).

Interestingly, Creedy et al. (2000) found that women who had experienced high levels of obstetric intervention, with the added factor of perceiving their maternity care as poor, were at an increased risk for postpartum trauma reactions compared to women who had received high levels of obstetric intervention or who had perceived their care as inadequate. These researchers also found that a forceps delivery was “as traumatic” (p. 109) as an emergency cesarean section and that some women felt great distress during a vacuum extraction. On the other hand, Czarnocka and Slade (2000) found no significant results for type of delivery, but they did find a significant relationship between experiencing an episiotomy and postpartum PTSD. Likewise, contrary to the findings of an association between obstetrical interventions and symptoms of PTSD was a study by Cohen and colleagues (2004) who found that mode of delivery, among other labor and delivery factors, was not significantly related to PTSD symptoms. Rather, they found that depression during pregnancy and numerous stressful life events were more strongly related to postpartum stress symptoms. In a study comparing the practices, attitudes, and beliefs about childbirth among obstetricians, midwives, and family physicians, obstetricians were found to favor more strongly technology and medical interventions,
while midwives favored these practices the least, and family physicians fell in between (Reime et al., 2004).

Fear during childbirth is a precipitating factor that is more prominent in nulliparous than in multiparous women. Studies have shown that the prevalence of intense fear during childbirth among women experiencing any type of birth is 45% (Waldenstrom, Borg, Olsson, Skold, & Wall, 1996) and among women experiencing emergency cesarean sections is 55% (Ryding et al., 1998a). As previously noted, the perception of threat of death or serious injury to self or others in which the person responded with intense fear, helplessness or horror is a specific diagnostic criterion for PTSD. In a study by Czarnocka and Slade (2000), fear for self during labor and delivery predicted high levels of symptoms of both intrusion and avoidance. Women who fear for the well-being of their baby are also at risk for developing symptoms of postpartum PTSD (Ballard et al., 1995). Results from one study indicated that women with the HELLP syndrome, which is a serious form of preeclampsia, are at greater risk for developing postpartum PTSD. The authors explained that this severe illness is often accompanied by unexpected complications surrounding the delivery, such as a cesarean section delivery, and a premature infant – factors that cause an increased physical and psychological burden to the mother (van Pampus, Wolf, Schultz, Neeleman, & Aarnoudse, 2004). In a study of the psychological effects of delivering a low birth weight infant (mean weight of 842 g), 20% of women met full criteria for PTSD following birth while 10% met criteria for subclinical PTSD (Elklit, 2007). Additionally, approximately 1/5 of women who experience the traumatic grief of a stillbirth, are likely to develop posttraumatic stress in the following pregnancy (Turton, Hughes, Evans, & Fainman, 2001).
Women who have dystocia, which is prolonged labor (active contractions lasting more than 12 hours), often describe their childbirth experience as negative and are at higher risk for medical intervention (Ballard et al., 1995; Nystedt, 2005). In addition, women who experience severe, poorly managed pain, describe their birth event as negative as well. Niven and Gijsbers (1984) found that the intensity of pain a woman is likely to experience during childbirth is much greater than disease conditions. Soet et al. (2003) found that in a United States sample, pain in the second stage of labor was a significant predictor of postpartum PTSD. Other studies did not find a correlation with pain and later maternal adjustment (Lemola, Stadlmayr, & Grob, 2007; Lyons, 1998). This may be explained by interacting emotional, cognitive, and cultural variables that influence the perception of pain. For example, Czarnocka and Slade (2002) indicated that women did not differ in their ratings of the physiological intensity of pain, but differed significantly in their perception of how distressful they perceived their pain to be. The current researcher seeks to understand the impact of perception (via cognitive appraisal) on the development of postpartum PTSD symptomology.

Similar to studies in general trauma, Lyons (1998) exerted that women’s perceived support from family members appears to be a mediating factor that is protective against the development of postpartum PTSD. Czarnocka and Slade (2000) postulated that partners’ helping women use coping strategies during labor and delivery might explain their study’s findings, that the absence of partners was associated with symptoms of PTSD. Interestingly, in an earlier study, Niven (1985) found that women experienced significantly less pain when their husbands were present, even when they did not describe their husbands as helpful. Results of a study by Cigoli, Gilli, and Saita (2006) on relational factors in childbirth, underline the importance of support from
mothers, sisters, and female friends. Additionally, continuous emotional and social support during labor and delivery provided by doulas and midwives appears to have a beneficial impact. A doula is a woman without medical training who provides continuous support usually for a fee. Support from a doula, compared to no doula, has been significantly associated with shorter labors, the use of less analgesia and oxytocin, and fewer forceps and cesarean section deliveries (Scott, Berkowitz, & Klaus, 1999). Further, Tarkka and Paunonen (1996) found a significant association between women’s perceptions of a positive birth experience and the emotional support provided by a midwife, who is a person trained to deliver babies.

Childbirth is often accompanied by feelings of vulnerability and concern about one’s ability to manage the emotional and physiological challenges of labor and delivery. It has been shown that poor coping skills, a poor sense of self-efficacy for coping with labor, self-blame for difficulties experienced, and less internal locus of control are associated with the development of postpartum PTSD (Czarnocka & Slade, 2000; Soet et al., 2003). Green and Baston (2003) examined different types of perceived control of 1146 women at six weeks postpartum. Multiparas experienced more internal control, specifically regarding control of their behavior and feeling in control during contractions, than did primiparas. Greater internal control was positively associated with satisfaction with the birth experience and emotional well-being. Interestingly, researchers as early as the 1970s have asserted that feelings of being active participants in birth rather than simply objects of care are associated with positive birth experiences for women (Davenport-Slack & Boylan, 1974; Willmuth, 1975).

Women develop hopes and fears about childbirth, which can influence their perception of the event. In a qualitative study of the process of traumatic childbirth, Allen
(1998) concluded that not only do the events during labor, but the meaning that women attach to the events, make the experience traumatic. Researchers have found that women with positive expectations of birth tend to have a positive experience, while those with lower expectations have poorer satisfaction with the birth experience (Waldenstrom, 1999; Soet et al., 2003). Conversely, discrepancies between women’s pre-birth expectations and their actual birth experience can be related to negative emotional outcomes. For example, Sjogren (1997) indicated that positive expectations about pain followed by greater perceptions of pain during birth resulted in dissatisfaction and subsequently, postpartum PTSD. Further, undergoing medical interventions that were unexpected is associated with symptoms of postpartum PTSD, especially avoidance symptoms (Czarnocka & Slade, 2000). Maggioni et al. (2006) found a relationship between expectations for a quick labor, high trait anxiety, and a decrease in perceived support from staff.

The perceptions of poor support and inadequate care from the medical staff during labor and delivery have been shown to be critical risk factors for postpartum PTSD. Green and Baston (2003) indicated that women’s sense of external control, specifically feeling in control of what was done to them by the medical staff, had a significantly greater impact on psychological outcomes than did a sense of internal control. Variables most closely associated with this feeling of external control were “feeling treated with respect and feeling treated as an individual” (Green & Baston, p. 246). Similarly, in Czarnocka and Slade’s (2000) study, women who met full criteria for PTSD, compared to the partially symptomatic group, showed elevated blame to the staff for difficulties experienced during birth. In regards to lack of support from the medical staff, women have reported feelings of helplessness (Allen, 1998), powerlessness (Menage, 1993; Soet
et al., 2003), and fear and horror (Allen, 1998; Ballard et al., 1995), which correspond with Criterion A for PTSD in the DSM-IV-TR. Further, women’s perceptions of being poorly informed about labor and delivery, experiencing little involvement in decision-making, and not being listened to by the staff are associated with postpartum PTSD symptoms (Beck, 2004; Creedy et al., 2000; Czarnocka & Slade; Lyons, 1998; Soet et al.). Some women with postpartum PTSD felt that they were wronged by the staff and that their trust had been betrayed by those who were supposed to care for them, resulting in ruminative anger and lingering feelings of mistrust (Allen; Ballard et al.; Beck). From a different perspective, Creedy et al. found in their prospective, longitudinal study that the “perception of professional and technical skills of staff was consistently associated with acute traumatic symptoms,” but that emotional aspect of care was not (p. 108). These findings are consistent with the general trauma literature, which shows that making external attributions or blaming others in some capacity are associated with PTSD.

In review, researchers have identified several precipitating risk factors occurring during labor and delivery that are associated with PTSD symptoms in the postpartum period. Such risk factors include a high level of obstetric interventions (e.g., surgery and instrument-assisted delivery), intense fear, prolonged labor, poor coping skills, and unmet expectations about the labor and delivery experience, poor support from family members and medical staff, as well as perceptions of inadequate care by medical staff.

*Maintaining factors.* Much less empirical information is available regarding maintaining factors associated with postpartum PTSD compared to predisposing and precipitating factors. Studies have shown that distress continues when women avoid thinking and talking about their traumatic birth experience (Allen, 1998; Ballard et al.
Moreover, avoidance behavior can maintain postpartum PTSD in that it might prevent women from seeking needed medical and mental health services.

The postpartum environment appears to have a very important impact on the development and/or maintenance of PTSD. For example, Soderquist et al. (2006) found that women with postpartum PTSD reported a decrease in perceived social support over time, while women without postpartum PTSD showed an increase. These researchers postulated that postpartum PTSD possibly affects relationships in a negative way.

Alternatively, postnatal emotional support from partners has been found to moderate the effects of a traumatic birth experience on the development of symptoms of avoidance, intrusion, hyperarousal, and depression at five months postpartum (Lemola et al., 2007). Lemola et al. explained that

> women who were confident of being supported by the partner and being able to discuss concerns with him without feeling criticized and or not accepted were less at risk of developing symptoms of depression and somewhat less likely to suffer from posttraumatic stress (p. 196).

Pain following a traumatic event is a risk factor for PTSD in the general population. In a recent study, it was found that pain following a severe physical injury increases the risk of PTSD by fivefold at four months and by sevenfold at eight months (Norman, Stein, Dimsdale, & Hoyt, 2008). Postpartum pain can cause sleep disturbance and might lead to feelings of discouragement and helplessness. Creedy et al. (2000) contends that these symptoms can interfere with a new mother’s ability to cope and manage the challenges of the postpartum period.

In addition to the deleterious effects of cumulative lifetime trauma, cumulative adversity and current life stressors may exacerbate postpartum PTSD. Kubiak (2005)
took into account social and environmental stressors among her sample of drug-convicted women and found that with each life trauma, PTSD increased 40% and that when chronic stressors were added, the predictability of PTSD was increased even more.

Comorbid psychological conditions can exacerbate postpartum PTSD. For example, women with depression and/or psychosomatic vulnerability might be more prone to the persistence of postpartum PTSD (Maggioni et al., 2006). Additionally, personality factors have been found to play a part in the maintenance of postpartum PTSD. According to a study by Wijma et al. (1997), women with high trait anxiety who experienced a negative birth retained their fearful thoughts of childbirth for up to one year postpartum. Maggioni et al. found a complex relationship among perception of support (higher expectations of medical help), trait anxiety, and the expectation of a quick labor. In reference to women who had such expectations, they suggested, “Perceived [medical staff] support may influence, buffer, or increase women’s reaction to the events but only in a sample of very anxious subjects” (Maggioni et al., p. 88). There is evidence that personality variables may be associated with stress responses following a traumatic event, however, not all of those who experience a stress response will go on to develop PTSD. Therefore, there are likely additional contributing or moderating factors. This study controlled for trait anxiety in order to investigate the impact of negative appraisals or specific dysfunctional thoughts (discussed in the next section) on postpartum PTSD symptomology that are recognized in the current empirical literature.

In summary, avoidance behavior, poor environmental support, cumulative and current life stressors, and comorbid physiological and psychological conditions are factors that have been found to exacerbate symptoms of PTSD. However, there is a dearth of research available that identifies specific factors associated with the
maintenance of postpartum PTSD symptoms. Cognitive models of trauma processing, as discussed in the following section, offer interpretive information regarding this issue.

Cognitive Appraisal as a Maintaining Factor

It is well documented that a person’s cognitive appraisal of a stressful event, rather than exclusively the objective characteristics of the event itself, leads to psychological and physiological distress (Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Lazarus & Folkman, 1984). Cognitive appraisals reflect a person’s perception, interpretation, and evaluation of the stressful event. Some authors describe appraisal in terms of personal meaning of the event (Ehlers, Maercker, & Boos, 2000; Herman, 1992).

Cognitive Appraisals in the General Trauma Literature

Researchers have found converging evidence that there are more negative, dysfunctional cognitions among individuals who have experienced a trauma compared to non-traumatized individuals (Ehlers & Clark, 2000; McCann & Pearlman, 1990; Resick & Schnicke, 1993). Further, individuals who ruminate about the effects of the trauma on their lives tend to have a high likelihood of developing chronic PTSD (Murray, Ehlers, & Mayou, 2002). Post event, negative cognitions have been reported among various types of trauma including accidents, interpersonal violence, and medical conditions. For example, Ehlers, Mayou, and Bryant (1998) conducted a prospective longitudinal study in which they assessed 967 motor vehicle accident (MVA) victims. Results indicated that participants who associated negative meanings (i.e., “I must be going out of my mind” and “I will never get over it”) and anger-related thoughts (i.e., “Others have harmed me”) with their intrusive recollections of the accident were more likely to experience chronic PTSD symptoms (Ehlers et al., 1998, p. 511). Results were consistent with those by Steil and Ehlers (2000) who found that MVA victims’ negative interpretations such as
believing they are going mad, they are incompetent, or there is future danger emerged as a significant predictor of PTSD symptom severity.

Cognitive appraisals have also been associated with both the onset and maintenance of PTSD after physical or sexual assault. In a study by Dunmore, Clark, and Ehlers (1999), the perception of ongoing threat was a central theme among participants. The researchers found that assault victims questioned aspects of their personality (“I am disgusting”), their safety (“You never know who may harm you”), and views of their world (“There is no justice in the world”) (Dunmore et al., 1999, p. 825). They also found that victims with PTSD had beliefs that their life had been permanently damaged, which is consistent with earlier trauma research (Ehlers et al., 1998). Confirming these deleterious effects of interpersonal violence is Ehlers et al.’s (2000) interview study of 81 former political prisoners. In addition to experiencing mental defeat during imprisonment, the post-trauma feeling of alienation from other people and the perception of permanent change for the worse in life were related to chronic PTSD.

Life-threatening medical conditions accompanied by negative cognitions can lead to the development and maintenance of PTSD in patients as well as caregivers. Field, Norman, and Barton (2008) using the Posttraumatic Cognitions Inventory (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) assessed post-event cognitive appraisals of 81 stroke patients. According to the study’s results, there were significant correlations between negative cognitions about the self and the world and the severity of PTSD symptoms, but not cognitions about self-blame. However, cognitive appraisals were unable to explain additional variance in PTSD symptom severity three months later. One study involved mothers who had developed PTSD symptoms following their child’s bone marrow transplantation (Manne et al., 2002). The researchers noted the mothers’ perceptions such
as not being able to put the cancer experience behind them or fearing that their child’s treatment would not be successful. They found that this type of cognitive processing at the time of the procedure was predictive of PTSD symptom severity six months following the procedure. Van den Hout and Engelhard (2004) assessed the relationship between cognitive appraisals and PTSD symptoms of women who had experienced a pregnancy loss one month previously. Using the Response to Intrusions Questionnaire (RIQ; Clohessy & Ehlers, 1999), participants indicated their interpretation of their post-trauma symptoms (e.g. “My reactions mean that something is wrong with me”) (Van den Hout & Engelhard, p. 182). The researchers found a significant, though modest, correlation \( r = .38, p < .001 \) between negative appraisal and PTSD symptoms. They also concluded that the association remained significant even when the stable personality trait, neuroticism, was statistically controlled. In contrast to findings in medical samples, Ayers, Copland, and Dunmore (2009) assessed participants who had recently suffered a myocardial infarction and did not find that post-event negative appraisals (i.e., “If I cannot control my thoughts about the heart attack, I will go crazy”) were significantly associated with PTSD symptoms (p. 463).

In regards to postpartum samples, several researchers have suggested that a woman’s cognitive appraisal of her birth experience as negative is a significant predictive factor of postpartum PTSD symptoms (Czarnocka & Slade, 2000; Maggioni et al., 2006; Nichols & Ayers, 2007; Slade, MacPherson, Hume, & Marsh, 1993; Soet et al., 2003; Waldenstrom, 2004; Wijma et al., 1997). Ayers (2007), in a qualitative study \( n = 50 \), found that “[a]fter birth, women with posttraumatic stress reported more painful memories [i.e., “I don’t like to think about it, it just makes me feel really upset again.”], intrusive memories [i.e., “Sometimes horrible images flashed through my mind.”], and
rumination [i.e., “Even now, like the other night, I couldn’t go back to sleep because I was thinking about it.”] and used fewer coping strategies that focused on present benefit, such as the baby or their [good] health” (p. 261). Further, Waldenstrom suggested that women’s thought processes following delivery might be dynamic rather than static. For example, for a significant number of women, their later perception or memory of their birth experience changed over time. Specifically, precipitating variables that contributed to women changing their assessment of childbirth from a positive experience (at two months postpartum) in a more negative direction (at one year postpartum) were an emergency cesarean section, severely painful labor, dissatisfaction with intra-partum care, and having unanswered questions at two months postpartum. However, more research is needed to expand our understanding of the perceptions women make related to their birth experiences.

*Theories of Cognitive Appraisal*

Multiple theories have been proposed to explain the role of dysfunctional cognitions in the development and maintenance of PTSD. According to an early and foundational *cognitive content-specificity hypothesis*, types of thought are uniquely associated with types of pathology. For example, Clark, Beck, and Brown (1989) found that “[a] negative expectancy about the future (i.e., hopelessness) and thoughts of loss and failure were uniquely predictive of depression, whereas cognitions involving harm or danger were associated only with anxiety” (p. 962). Schema theorists propose the concept that core assumptions and beliefs guide the perception of incoming information during and following a traumatic experience. Horowitz (1986), for example, suggests that the psychopathology of trauma develops when the traumatic experience is incongruent with preexisting internal belief models (schemas). Similarly, Epstein (1985) proposed that
symptoms develop when four positive core beliefs are shattered following the traumatic event: the belief that the world is benign, that the world is meaningful, that the self is worthy, and that people are trustworthy. McCann and Pearlman (1990) extended the types of beliefs that are influenced by a traumatic experience to include beliefs about safety, trust, power, esteem, and intimacy. Cognitive theories of PTSD, such as Ehlers and Clark’s (2000) model, suggest that victims tend to selectively retrieve trauma information that is biased by their negative cognitive appraisal of the traumatic event, which results in a sense of present threat.

Consistent with schema and cognitive theories is emotional processing theory in which Foa and Rothbaum (1998) contend that there are two basic and specific dysfunctional cognitions involved in the development of PTSD: (a) the world is indiscriminately dangerous and (b) the self is incompetent or inadequate. They proposed that trauma victims with pre-trauma rigid concepts (positive and negative) about the self and the world are likely to be more susceptible to PTSD. As a result of this rigid way of perceiving the self and the world prior to the traumatic event, these individuals have difficulty assimilating or accommodating the experience. Foa and Rothbaum also suggest that an individual’s excessively negative appraisals and personal meaning of the traumatic event are associated with the maintenance of PTSD. For example, traumatized individuals may begin to generally view people as untrustworthy and PTSD symptoms as dangerous. These individuals tend to exaggerate the likelihood of future negative events and the potential for future harm. Foa and Rothbaum’s conceptualization of specific dysfunctional cognitions was used in this study.

As discussed, generally negative cognitions have been associated with PTSD symptoms. More recently, trauma researchers have begun to narrow their focus on
dysfunctional cognitions to those of the world as indiscriminately dangerous and the self as incompetent and inadequate (Agar, Kennedy, & King, 2006; Foa et al., 1999; Kangas, Henry, & Bryant, 2005; Katz, Snetter, Robinson, Hewitt, & Cojucar, 2008; Renaud, 2008; Startup, Makgekgenene, & Webster, 2007). In gaining a better understanding of cognitive vulnerability in the development and maintenance of PTSD symptoms, it is important to differentiate specific cognitions. Doing so might aid in cognitive interventions and in the assessment of treatment for postpartum women. For example, using a cognitive model, clinicians tend to facilitate clients in identifying and modifying maladaptive patterns of thinking that might be maintaining symptoms. To date, however, no studies in the childbirth literature have examined the specific types of dysfunctional cognitions of post-event symptoms, such as those proposed by Foa and Rothbaum (1998). Given the current focus in the general trauma literature on specific types of cognitions and the practical implications of better understanding the cognitions of those with PTSD, the current study investigated two specific cognitions that the world is indiscriminately dangerous and the self is incompetent and inadequate.

Purpose of the Study

In recent years, a growing body of research has provided evidence for symptoms of posttraumatic stress following childbirth (Ayers & Pickering, 2001; Creedy et al., 2000; Czarnocka & Slade, 2000; Soet et al., 2003; Wijma et al., 1997). Further, empirical findings suggest that there is a complex relationship among predisposing, precipitating, and maintaining factors that impact postpartum PTSD symptoms. The predisposing personality factor, trait anxiety, has been shown to be a significant predictor of postpartum PTSD symptoms. Yet, literature reviews of postpartum PTSD risk factors suggest that within individual factors along with environmental factors influence PTSD
symptoms (Olde et al., 2006; Slade, 2006). Further, the perception of poor support from medical staff during childbirth has been shown to be a significant precipitating predictive factor of postpartum PTSD symptoms (Czarnocka & Slade; Soet et al.; Wijma et al.). Although external attributions have been associated with the development of PTSD in the general stress literature, to date, only two studies have examined perceived medical staff support in relationship to postpartum PTSD symptoms in a United States samples. Soet et al. conducted a quantitative study of 103 women from the United States and Beck (2004) conducted a qualitative study of 40 participants of which eight were from the United States.

There is ample evidence for an individual’s negative appraisal following a traumatic event as a maintaining factor for PTSD (Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Lazarus & Folkman, 1984; Wijma et al., 1997). The majority of the current trauma literature focuses on specific types of negative cognitions – those about the self and the world (Foa & Rothbaum). Yet, no known studies to date have investigated these specific cognitions in a sample of postpartum women. The identification of specific negative cognitions is important because they are targeted in cognitive behavioral approaches often used to treat PTSD. Furthermore, the effects of women’s postpartum cognitive appraisals on perceptions of poor support from medical staff as they relate to postpartum PTSD symptoms are not delineated in the literature. Such an understanding could lead to a more parsimonious and effective means of not only examining risk factors for postpartum posttraumatic symptoms but developing preventive intervention strategies as well.

The purpose of the current study was to investigate the relationships among women’s perception of labor and delivery medical staff support, women’s postpartum
negative cognitions of their birth experiences, and postpartum PTSD symptom severity after controlling for trait anxiety. Specifically, this study investigated whether or not postpartum cognitions of the world as indiscriminately dangerous and the self as incompetent or inadequate moderate and mediate the relationship between perception of poor medical staff support and PTSD symptom severity.

Research Questions

The research questions for the proposed study are as follows:

1. What is the relationship between postpartum PTSD symptoms, negative cognitions about the self and the world, and perceptions of medical staff support?

2. When controlling for trait anxiety, do negative cognitions about the self moderate the relationship between the perception of medical staff support and the symptoms associated with postpartum PTSD?

3. When controlling for trait anxiety, do negative cognitions about the world moderate the relationship between the perception of medical staff support and the symptoms associated with postpartum PTSD?

4. When controlling for trait anxiety, do negative cognitions about the self mediate the relationship between the perception of medical staff support and the symptoms associated with postpartum PTSD?

5. When controlling for trait anxiety, do negative cognitions about the world mediate the relationship between the perception of medical staff support and the symptoms associated with postpartum PTSD?
CHAPTER II

METHOD

Participants

A power analysis was conducted, which indicated that a minimum of 129 completed protocols were necessary to achieve a power of 95% in detecting a moderate relationship. A convenience sample of postpartum women was recruited to participate in this study. Participants must have given birth between six weeks and one year prior to completing the survey materials. This time frame was established for three reasons: a) to differentiate symptoms of PTSD from symptoms of Acute Stress Disorder [According to the DSM-IV-TR (American Psychiatric Association, 2000), Criterion E for the diagnosis of PTSD requires at least one-month duration of symptoms in Criteria B, C, and D, whereas the symptoms of Acute Stress Disorder last for a maximum of four weeks.], b) to avoid possible confounding symptoms, such as hormonal influences and hyperarousal, associated with the peuperium, the six-week period following birth during which a woman’s body reverts to a non-pregnancy state, and c) to encompass the postpartum period, which lasts one year following birth. Additional criteria for inclusion in the study included an age of 18 years or older, giving birth in a United States hospital or clinic with the assistance of medical staff including an obstetrician, midwife, primary care physician, medical student, or nurse, and the ability to read English. Women who had a termination of their pregnancy or who delivered their baby prior to 37 weeks gestation were excluded from the study. According to the American College of Obstetricians and Gynecologists and the American Academy of Pediatrics (1997), preterm birth is defined as less than 37 weeks gestation and a preterm baby has increased risks of morbidity and mortality. These deleterious results possibly associated with preterm birth were thought to be a possible
confound for this study. In addition, women whose baby did not survive for at least 24 hours following delivery were excluded from the study due to the possible confound of a grief reaction. Women were not excluded due to parity, medical complications for themselves or their newborn, giving birth to multiples, or placing their newborn for adoption.

Approximately 742 individuals viewed the online survey posted on the PsychSurveys link and 239 participants began completing the survey. The surveys were screened for missing values as well as inclusion and exclusion criteria. Those participants (n = 110) not completing the survey, not meeting inclusion criteria (must be between six weeks and one year postpartum, must be 18 years of age or older, and must have delivered in a United States hospital or clinic), and/or not meeting exclusion criteria (delivered prior to 37 weeks gestation and experienced death of the baby within 24 hours following delivery) were excluded from the study. The final sample included 129 mothers, 18 years of age or older, who carried their baby at least 37 weeks, gave birth to a viable infant in a United States hospital or clinic, and completed the survey between six weeks and one year postpartum. Frequencies for demographic and birth characteristics are presented in Table 1. Participants ranged in age from 19–43 with a mean age of 30 (SD = 4.48), which was similar to other postpartum PTSD studies (Czarnocka & Slade, 2000; Maggioni et al., 2006; Soet et al., 2003; White et al., 2006). The sample was predominantly non-Latina White and married. The majority reported a yearly household income greater than $51,000 and was well-educated with most completing a bachelor’s degree. The typical respondent had experienced three or fewer pregnancies and had given birth to one or two children. Approximately 30% of women reported that prior to delivery they had a mental health problem such as depression or
Table 1

*Frequencies for Demographic and Birth Characteristics*

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<td>%</td>
</tr>
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<td>---------------------------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>Two</td>
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<td></td>
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<td>28</td>
<td>21.7</td>
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<tr>
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<td>1.6</td>
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<td>.8</td>
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<td>Gender of assistant in delivery</td>
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<td></td>
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<tr>
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<td>54</td>
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<tr>
<td>Gave birth to multiples</td>
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<td></td>
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<tr>
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<td>1</td>
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<tr>
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Obstetrical Interventions

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<tr>
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</tr>
<tr>
<td>Vacuum suction device</td>
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<td>5.4</td>
</tr>
<tr>
<td>Episiotomy</td>
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Pain medication

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<tr>
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<td>43</td>
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Medication to start labor or keep it going

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<th>%</th>
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</thead>
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<td>52.7</td>
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<td>60</td>
<td>46.5</td>
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Long labor (≥ 12 hours)

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<td>45</td>
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<tr>
<td>No</td>
<td>84</td>
<td>65.1</td>
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Complications for mother

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</tr>
</thead>
<tbody>
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<td>21</td>
<td>16.3</td>
</tr>
<tr>
<td>No</td>
<td>106</td>
<td>82.2</td>
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Complications for baby

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<td>35</td>
<td>27.1</td>
</tr>
<tr>
<td>No</td>
<td>94</td>
<td>72.9</td>
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Afraid mother or baby might be injured or die

<table>
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<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
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<td>27</td>
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<tr>
<td>No</td>
<td>102</td>
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Received wanted support

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<td>129</td>
<td>100</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
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Denied support person(s)

<table>
<thead>
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<th>N</th>
<th>%</th>
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<tr>
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<tr>
<td>No</td>
<td>123</td>
<td>95.3</td>
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Placed baby for adoption

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<thead>
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<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>129</td>
<td>100</td>
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</table>

anxiety. Further, several participants reposted a history of trauma exposure, including childhood physical and/or sexual abuse, physical attack/beaten up, injury or property damage due to a natural disaster and sexual assault/rape.
On average, women in the sample were approximately 28 weeks postpartum. Approximately three-fourths of the births were assisted by obstetricians while approximately one-fourth were assisted by midwives. Of those professionals who delivered the participants’ infants, slightly more were female (58.1%). Only one participant reported giving birth to multiples at a minimum of 37 weeks gestation. Two thirds of the respondents reported that they had planned a natural childbirth, whereas almost half reported that birth did not go as they had planned or expected. Approximately two thirds of women had a vaginal delivery and of the remaining approximately one third who had cesarean sections, slightly more experienced unplanned/emergency cesarean sections. This rate of cesarean deliveries is consistent with United States rates (32%) according to the most current report of the Centers for Disease Control and Prevention’s National Center for Health Statistics (2008). Interestingly, relatively few women reported experiencing forceps and vacuum suction device interventions, whereas slightly more reported experiencing an episiotomy. These rates of obstetrical interventions are less than those reported in other studies (Creedy et al., 2000; Czarnocka & Slade, 2000). Approximately one-third of women experienced a long labor (12 hours or more), approximately two-thirds received pain reducing medications during labor or delivery, and slightly more than one-half received medication to start their labor and/or keep it going. Twenty-one participants reported that they had experienced some type of medical complication(s) during or following birth and 35 reported that their baby experienced some type of medical complication(s). Further, a substantial number of women of women (20.9%) were afraid that they or their baby might be injured or might die during labor and or delivery. One hundred percent of the respondents reported that during labor and delivery they had (non-medical) individuals with them who provided the support they
wanted. However, almost 5% reported that even though they had some support, they were denied the presence of another particular support person. None of the participants in this study reported placing their baby for adoption.

Instruments

*Demographic and Birth Characteristics Questionnaire*

Women consenting to participate in the study completed a 27-item Demographic and Birth Characteristics Questionnaire (see Appendix A), developed by the researcher, which includes age, ethnicity, marital status, highest level of education, yearly household income, previous mental health problems, gravida, parity, and history of past trauma. Questions regarding past trauma are taken from a subset of questions used by Cohen et al. (2004) and Leeds and Hargreaves (2008) in their studies of postpartum women. Regarding their most recent delivery, participants were asked to indicate birth characteristics including the mode of delivery, obstetrical interventions, attending medical staff, duration of labor, pain management, available support, planned natural birth, expectations met, medical complications in self or newborn, and number of weeks since delivery. Lastly, they were asked to answer a question that was designed to indicate whether or not the stress criterion (perceived threat and intense emotional response) had been met for PTSD as defined by the DSM-IV-TR (American Psychiatric Association, 2000).

*Post-Traumatic Stress Disorder Questionnaire*

The Post-Traumatic Stress Disorder Questionnaire (PTSD-Q; Czarnocka & Slade, 2000) was used to measure postpartum posttraumatic stress symptoms. The PTSD-Q is a 17-item self-administered scale based on the PTSD-Inventory (PTSD-I), which was developed by Watson, Juba, Manifold, Kucala, and Anderson (1991) and directly relates
to the PTSD criteria of the DSM-IV-TR (American Psychiatric Association, 2000). On the PTSD-Q, items are rated on a seven-point Likert scale, 1 = never to 7 = always in reference to frequency. Items are considered clinically significant if they receive an endorsement of 4 = common. Four possible scores, including an overall score, are derived from item responses. For this study, an overall score on the PTSD-Q will be used. The questionnaire contains a possible range of scores from 17 to 119 with higher scores indicating greater frequency of PTSD symptoms associated with childbirth.

Watson et al. (1991) reported a 92% concurrence with the diagnostic categorization based on DSM standards. Watson et al.’s measure was developed and validated on male Vietnam combat veterans. However, Czarnocka and Slade (2000) converted the PTSD-I to a self-report questionnaire (PTSD-Q) and used it with a sample of 298 postpartum women. Further, Czarnocka and Slade specified labor and delivery as the referent traumatic event as was done in this current study.

Questionnaire items focus on the frequency of the three dimensions of intrusion, avoidance, and hyperarousal symptoms. Items representing the intrusion dimension are 1, 2, 3, and 4. Items representing the avoidance dimension are 5, 6, 7, 8, 9, 10, and 11. Lastly, items representing the hyperarousal dimension are 12, 13, 14, 15, 16, and 17. In accordance with the DSM-IV-TR, to make a diagnosis of PTSD an individual would be required to report at least one item for the intrusion dimension, a minimum of three for the avoidance dimension, and a minimum of two for the hyperarousal dimension. Several studies using the PTSD-Q have determined that if requirements for only one or two dimensions have been endorsed, the woman is classified as partially symptomatic, whereas if requirements for all three dimensions are endorsed, the woman is classified as fully symptomatic (Bradley, Slade, & Leviston, 2008; Czarnocka & Slade, 2000;
Maggioni et al., 2006). Czarnocka and Slade state that the PTSD-Q does not provide diagnosis, but does “provide diagnostic categorization according to the DSM-IV and the results are likely to show some predictive capacity” (p. 46). Watson et al. (1991) stated that on the PTSD-I, “We consider a ‘4’ (‘somewhat, commonly’) sufficient to meet the relevant DSM symptom criterion. Users could substitute higher or lower cut-off points if desired …;” however, he suggests that the “¾ cut-off produces an optimal sensitivity/specificity balance” (Watson et al., p. 181).

Previous literature reveals that the items for the PTSD-Q have an internal consistency Cronbach’s alpha coefficient of 0.87 (Czarnocka & Slade, 2000). Watson et al. (1991) found that the alpha coefficient for the similar items of the PTSD-I is 0.92. Watson et al. also found that the total score test-retest reliability coefficient of the PTSD-I is 0.95. The researchers assessed the concurrent validity of the PTSD-I by studying its ratings with the National Institute of Mental Health Diagnostic Interview Schedule (NIMH DIS, Version III-A) post-traumatic stress disorder section (Robins & Helzer, 1985), a widely used and respected measure. The biserial correlation between the PTSD-I Total score and the DIS stress disorder qualification was very high \( r^2_{\text{bis}} = .94 \). Sensitivity of the PTSD-I was .89 and its specificity was .94 when corresponded with the DIS.

Perceptions of Labour and Delivery Scale

The Perceptions of Labour and Delivery Scale (PLDS; Czarnocka & Slade, 2000) was used to assess women’s postpartum perceptions of medical staff support. Czarnocka and Slade developed this measure for their study intended to help identify potential predictors of post-traumatic stress type symptoms following delivery. The PLDS consists of 23 items designed to assess labor and delivery experiences based on women’s
subjective appraisal factors as reported in previous postpartum PTSD literature. The PLDS is composed of three subscales: Staff Support, Pain, and Fear. Participants indicated the degree to which each statement applied to her labor and delivery experience by rating each item on a scale ranging from 1 = *not at all* to 10 = *extremely*. Women who underwent planned cesarean sections were asked to answer the questions in regards to their delivery experience only. Total scores on the PLDS can range from 23 – 230 with higher scores indicating a more negative appraisal of delivery. Reverse scored items are 1, 6, 7, 13, 14, 15, 16, 17, 18, 20, and 23.

The three subscales of the PLDS have produced internal consistency Cronbach’s alpha coefficients of Staff Support, $a = 0.81$, Pain, $a = 0.87$, and Fear, $a = 0.78$, respectively (Bailham, Slade, & Joseph, 2004). Bailham et al., (2004) found a significant negative correlation between staff support and fear ($r = -0.37$, $p < 0.01$) and staff support and pain ($r = 0.25$, $p < 0.01$). However, they found no correlation between pain and fear ($r = 0.05$, ns). The current study utilized the PLDS total score. As evidenced by Czarnocka and Slade’s (2000) study, which consisted of a sample of 298 newly delivered women, the PLDS can be applicable for primipara and multipara women and for women who have undergone various types of delivery including vaginal deliveries, assisted deliveries (i.e., use of forceps and vacuum devices), planned cesarean sections, and emergency cesarean sections.

*Posttraumatic Cognitions Inventory*

Foa et al. (1999) describe the Posttraumatic Cognitions Inventory (PTCI) as a “measure of trauma-related thoughts and beliefs…whose items were derived from clinical observations and current theories of post-trauma psychopathology” (p. 303). For the current study, the inventory was used to measure negative cognitions that women may
experience following labor and delivery. The self-report inventory consists of 36 items, with possible responses in a 7-point Likert scale ranging from $1 = \text{totally disagree}$ to $7 = \text{totally agree}$. The PTCI contains three subscales: Negative Cognitions About Self, Negative Cognitions About the World, and Self-Blame. The 21-item Negative Cognitions About Self subscale reflects a “general negative view of self, permanent change, alienation, hopelessness, self-trust, and negative interpretation of symptoms” (Foa et al., p. 306). Items in this subscale are 2, 3, 4, 5, 6, 9, 12, 14, 16, 17, 20, 21, 24, 25, 26, 28, 29, 30, 33, 35, and 36. Scores can range from 21-147 with higher scores indicating a more negative self perception. The 7-item Negative Cognitions About the World subscale exemplifies the concepts of an “unsafe world and mistrust of other people” (Foa et al., p. 306). Items in this subscale are 7, 8, 10, 11, 18, 23, and 27. Scores can range from 7–49 with higher scores indicating a more negative perception of the world. The 5-item Self-Blame subscale reflects self-attributes and behaviors, but will not be used in this study. Various researchers have found that the Self-Blame scale did not correlate significantly with PTSD symptom severity as did the other two subscales of the PCIT (Beck et al., 2004; Field et al., 2008; Startup et al., 2007; Muller et al., 2010). Startup et al. suggested that this may be due to suppressor effects due to certain aspects that are already assessed by the Negative Cognitions About Self subscale. The internal consistency Cronbach’s alpha coefficient for the PTCI Total score is robust at $\alpha = 0.97$. Internal consistencies for the three subscales are Negative Cognitions About Self, $\alpha = 0.97$, Negative Cognitions About the World, $\alpha = 0.88$, and Self Blame, $\alpha = 0.86$. Using Spearman Rho correlations, temporal stability for the PTCI was examined, which is reflected in test-retest reliabilities as follows: Total score, $P = .74$, Negative Cognitions About Self, $P = .75$, Negative Cognitions About the World, $P = .89$, and Self Blame, $P = .80$. When compared to
corresponding scales on the Personal Beliefs and Reactions Scale (PBRS; Resick, Schnicke, & Markway, 1991), which measures changes in cognitions after trauma therapy, the PTCI demonstrated construct validity with moderate to high correlations. Further, the PTCI revealed discriminate validity. For example, Foa et al. found that the PTCI discriminated between traumatized individuals with and without PTSD even after controlling for depression, state anxiety, age, sex, race, and type of assault. The PTCI revealed good sensitivity and a very high specificity regarding the identification of traumatized individuals who did and did not develop PTSD. The PTCI also showed a high correlation with PTSD severity.

The PTCI was developed and validated with a large sample of 601 adult volunteers including participants who were being treated for posttraumatic symptoms at two university departments of psychiatry, participants from the community, and undergraduate students. Participants were divided into three categories: traumatized individuals with and without at least moderate PTSD symptoms and non-traumatized individuals. The PTCI has been used extensively in research with various traumatized populations including firefighters, medical patients, Vietnam veterans, female sexual assault victims, and natural disaster victims. Further, the PTCI has been translated into several languages including German, Dutch, and Chinese.

State-Trait Anxiety Inventory

The State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) was used to assess for trait anxiety. The inventory is comprised of two scales, one designed to measure state anxiety and the other to measure trait anxiety. Factor analysis has yielded clear distinctions between state and trait anxiety (Spielberger et al., 1983). Spielberger et al. describe trait anxiety as “… stable individual differences
in anxiety-proneness, that is, to differences between people in the tendency to perceive stressful situation (sic) as dangerous or threatening and to respond to such situations with elevations in the intensity of their state anxiety reactions” (p. 5). In contrast, the authors describe state anxiety as “a palpable reaction or process taking place at a given time and level of intensity” (Spielberger et al., p. 5).

Only the 20-item T-Anxiety scale (STAI Form Y-2) of the inventory, which measures how adults generally feel as a function of a personality trait, will be used for this study. The STAI is a self-report measure and contains four-point Likert items including 1 = almost never, 2 = sometimes, 3 = often, 4 = almost always. The following are anxiety absent items and are reverse scored: 21, 23, 26, 27, 30, 33, 34, 36, and 39. Thus, the STAI has a minimum score of 20 and a maximum score of 80. Higher scores indicate the presence of more trait anxiety.

The STAI has been widely used for research in a variety of disciplines including psychology and medicine as well as in clinical settings and has been adapted in more than thirty languages. Moreover, it has been used in numerous childbirth-related studies. The STAI was normed on more than 5000 participants ranging from adolescence to age 69 and including male and female working adults, high school and college students, and military recruits. Cronbach alpha coefficients for these samples on the Trait-anxiety scale ranged from 0.89 to 0.91. Stability of the STAI (T-Anxiety scale; Form Y-1) was assessed on male and female high school and college students with test-retest intervals ranging from one hour to 104 days resulting in reliability coefficients of .65 to .86 for the Trait-anxiety scale. The STAI was demonstrated to be a valid measure of anxiety. Concurrent validity was established when the STAI was correlated with other measure of trait-anxiety including the Taylor Manifest Anxiety Scale and the IPAT Anxiety Scale
with correlations ranging from .80 to .75, respectively. Correlations of the STAI and other measures of personality have also provided evidence of the convergent and divergent validity of the STAI.

Procedure

The Institutional Review Board Human Subjects Protection Review Committee approved this study (See Appendix B). Participants were recruited through various methods, including flyers distributed at physicians’ offices and counselors’ offices in Georgia, Alabama, California, North Carolina, and Florida. Announcements inviting participation in the study were posted on online websites of perinatal and postpartum support groups and blogs, an online academic discussion board, electronic newsletters of perinatal and postpartum mood and anxiety organizations and organizations that provide couples and family therapy. These online sites are accessed by individuals across the United States and internationally, in some cases. The researcher made initial contact with individual personnel of the potential recruiting venues listed above via phone, email, or in person and provided a brief description of the current study to assess the interest and appropriateness in allowing advertisement for recruitment. Information containing a brief description of the study, a link to the website containing survey materials, and researcher contact information was provided via flyers. Additional participants were informed of the study through snowballing where they were encouraged to refer others to the online survey materials directly. Estimation of the number of individuals contacted is difficult to provide because various websites posted information regarding the current study, the number of e-newsletter subscribers was not provided, and the extent of the use of snowballing is unknown.
The primary researcher created the survey through the secure online survey service provider, PsychSurveys. The link to the survey is (https://www.psychsurveys.org/lauren/childbirth). To ensure privacy, obtained data was only accessible by the researcher with a secure password. Participants were directed to an online survey host that contained instructions and an informed consent form (Appendix C), a demographic and birth characteristics questionnaire (Appendix A), the measures of PTSD symptoms, perceptions of labor and delivery, posttraumatic cognitions, and trait anxiety. The order of the presentation of the PTSD-Q, PLDS, and PTCI questionnaires was altered to counterbalance order effects. Prior to completing the questionnaires, individuals were given the option to agree to participate in the study, which constituted informed consent and indicated that they were at least 18 years of age or older. They were encouraged to print and keep a copy of the instructions. Participants were informed that their questionnaires would be kept confidential. To ensure anonymity, they were not asked to provide their names and they were identified only by an alpha-numerical code. Participants were also informed that they were free to withdraw from the study at any time without penalty should they have desired. The protection of human subjects guidelines were maintained throughout the study. Total estimated time required to complete the survey materials was 30 to 40 minutes. Participants were informed that a one-dollar donation would be made to the Postpartum Support International organization for all usable surveys completed. This donation was made to the organization by the primary researcher on October 3, 2011.

Research Questions and Hypotheses

1. What is the relationship between perceptions of medical staff support, negative cognitions, and postpartum PTSD symptoms?
H1. A significant positive relationship will emerge between perceptions of medical staff support and both negative cognitions regarding self and the world and postpartum PTSD symptoms. More poorly perceived medical staff support will be related to greater levels of negative cognitions of the self and world and greater postpartum PTSD symptom severity.

2. When controlling for trait anxiety, do negative cognitions about the self moderate the relationship between the perception of poor medical staff support and the symptoms associated with postpartum PTSD?

H2. The effect of the perception of poor medical staff support on postpartum PTSD symptoms will vary as a function of women’s negative cognitions about the self.

3. When controlling for trait anxiety, do negative cognitions about the world moderate the relationship between the perception of poor medical staff support and the symptoms associated with postpartum PTSD?

H3. The effect of the perception of poor medical staff support on postpartum PTSD symptoms will vary as a function of women’s negative cognitions about the world.

4. When controlling for trait anxiety, do negative cognitions about the self mediate the relationship between the perception of poor medical staff support and the symptoms associated with postpartum PTSD?

H4. The perception of poor medical staff support will indirectly influence PTSD symptom severity via negative cognitions about the self.
5. When controlling for trait anxiety, do negative cognitions about the world mediate the relationship between the perception of poor medical staff support and the symptoms associated with postpartum PTSD?

H$_5$. The perception of poor medical staff support will indirectly influence PTSD symptom severity via negative cognitions about the world.
CHAPTER III

RESULTS

Descriptive Statistics

All data analyses in this study were performed using SPSS Version 17. Means, standard deviations, and other descriptive information for each measure are presented in Table 2. Overall, scores on the STAI were within a standard deviation of those means reported in similar populations (Creedy et al., 2000). Furthermore, STAI scores were similar to general population norms for women ages 19–39 (Spielberger et al., 1983). For the current sample, the average Negative Cognitions About Self scores, as measured by the PTCI, were more than a standard deviation lower in some cases and within a standard deviation of means in other cases in previous research involving mixed traumas including sexual and nonsexual assault and accidents (Dorfel, Rabe, & Karl, 2008; Hagenaars, van Minnen, & de Rooij, 2010). Scores on the Negative Cognitions About the World were consistently lower than a standard deviation from the means in previous research involving mixed traumas (Dorfel et al., 2008; Hagenaars et al., 2010). Overall scores on the PTSD-Q were within a standard deviation of those means reported in similar populations who were partially symptomatic and those who were non-symptomatic for PTSD symptoms (Czarnocka & Slade, 2000). In the postpartum literature, means for the PLDS subscale scores were reported in reference to specific birth characteristics (e.g., type of delivery); therefore, information was not found for total score means (Bailham et al., 2004).

Reliabilities for the measures were computed and reflected robust Cronbach’s alpha coefficients of $a = 0.93$ for the STAI, $a = 0.93$ for the PLDS, $a = 0.94$ for the PTCI Self subscale, $a = 0.92$, for the PTCI World subscale, and $a = 0.91$ for the PTSD-Q.
Further, all of the assumptions of multiple regression, specifically linearity, homoscedasticity, and normality of residuals, were visually examined by scatter plots. Results indicated that all assumptions were met.

Table 2

*Summary of Means, Standard Deviations, and Intercorrelations for Study Measures*

<table>
<thead>
<tr>
<th>Measure</th>
<th>M(SD)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PTSD-Q</td>
<td>30.42(14.39)</td>
<td>-</td>
<td>.704**</td>
<td>.728**</td>
<td>.645**</td>
<td>.540**</td>
</tr>
<tr>
<td>2. PLDS</td>
<td>92.47(39.64)</td>
<td>-</td>
<td>.539**</td>
<td>.465**</td>
<td>.420**</td>
<td></td>
</tr>
<tr>
<td>3. PTCI Self</td>
<td>33.29(16.85)</td>
<td>-</td>
<td>.750**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. PTCI World</td>
<td>15.33(9.39)</td>
<td>-</td>
<td></td>
<td>.577**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. STAI</td>
<td>36.70(9.70)</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. PTSD-Q = PTSD Questionnaire; PLDS = Perceptions of Labour and Delivery Scale; PTCI = Posttraumatic Cognitions Inventory; STAI = State-Trait Anxiety Inventory.

**p < .01.

A series of bivariate correlations were computed between demographic variables and the PTSD-Q total scores. Factors that were significantly associated with the criterion at the .01 level were a long labor ($r = .339$), complications during or following birth for the baby ($r = .324$), and fear of death or injury to self or baby ($r = .456$). A factor that was significantly associated with the criterion at the .05 level was experiencing a history of trauma (specifically injury or property damage due to fire, weather, or other natural event ($r = .224$).
Associations Between Demographic and Birth Characteristics and Dimensions of PTSD

Additionally, a series of Pearson Chi-Square statistics were computed to examine the relationship between various demographic and birth characteristic variables and the three dimensions of PTSD symptoms (See Table 3). Demographic variables examined included previous mental health problems, trauma history, type of professional and gender of professional assisting in delivery, planned natural childbirth, birth experienced as planned or expected, mode of delivery (vaginal, planned cesarean section, unplanned/emergency cesarean section), obstetrical interventions (forceps, vacuum device, episiotomy), pain reducing medications, medication to start labor or keep it going, long labor ($\geq$ 12 hours), complications experienced by the mother, complication experienced by the baby, fear of death or injury, received desired support, and support denied. PTSD-Q questionnaire items focus on the frequency of intrusion, avoidance, and hyperarousal symptoms. Consistent with the DSM-IV-TR, participants are considered fully symptomatic if they report at least one item for the intrusion dimension, a minimum of three for the avoidance dimension, and a minimum of two for the hyperarousal dimension. Moreover, consistent with the postpartum PTSD literature, participants are considered partially symptomatic if they endorse only one or two dimensions (Bradley et al., 2008; Czarnocka & Slade, 2000; Maggioni et al., 2006). It is important to keep in mind that, according to Czarnocka and Slade (2000), the PTSD-Q does not provide diagnosis, but does “provide diagnostic categorization according to the DSM-IV and the results are likely to show some predictive capacity” (p. 46). The overall sample ($N = 129$) included three participants who were fully symptomatic and 25 participants who were partially symptomatic (2% and 19%, respectively). These results are consistent with
empirical evidence for postpartum PTSD in both United States and international samples (Czarnocka & Slade, 2000; Soet et al., 2003; Wijma et al., 1997).

Table 3

*Number of Participants Endorsing Demographics and Birth Characteristics at Various Levels of PTSD Symptoms*

<table>
<thead>
<tr>
<th>Levels of PTSD Symptoms</th>
<th>NS (n = 101)</th>
<th>PS (n = 25)</th>
<th>FS (n = 3)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man-made disaster</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>$\chi^2 (2, N = 129) = 13.35, p = .001$</td>
</tr>
<tr>
<td>Natural disaster</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>$\chi^2 (2, N = 129) = 9.01, p = .011$</td>
</tr>
<tr>
<td>Sexual assault/rape</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>$\chi^2 (2, N = 129) = 11.22, p = .004$</td>
</tr>
<tr>
<td>Murder/suicide</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>$\chi^2 (2, N = 129) = 6.11, p = .047$</td>
</tr>
<tr>
<td>Gender of the person delivering (Male)</td>
<td>36</td>
<td>17</td>
<td>1</td>
<td>$\chi^2 (2, N = 129), = 8.71, p = .013$</td>
</tr>
<tr>
<td>(Female)</td>
<td>65</td>
<td>8</td>
<td>2</td>
<td>$\chi^2 (2, N = 129), = 8.71, p = .013$</td>
</tr>
<tr>
<td>Complications (baby)</td>
<td>18</td>
<td>17</td>
<td>0</td>
<td>$\chi^2 (2, N = 129) = 26.67, p = .000$</td>
</tr>
<tr>
<td>Complications (mother)</td>
<td>14</td>
<td>5</td>
<td>2</td>
<td>$\chi^2 (4, N = 129) = 14.95, p = .005$</td>
</tr>
<tr>
<td>Fear of death or injury</td>
<td>14</td>
<td>11</td>
<td>2</td>
<td>$\chi^2 (2, N = 129) = 14.88, p = .001$</td>
</tr>
<tr>
<td>Birth went as planned</td>
<td>66</td>
<td>5</td>
<td>0</td>
<td>$\chi^2 (2, N = 129) = 20.41, p = .000$</td>
</tr>
<tr>
<td>Vaginal delivery</td>
<td>79</td>
<td>9</td>
<td>0</td>
<td>$\chi^2 (4, N = 129) = 33.30, p = .000$</td>
</tr>
<tr>
<td>Planned C-section</td>
<td>12</td>
<td>4</td>
<td>0</td>
<td>$\chi^2 (4, N = 129) = 33.30, p = .000$</td>
</tr>
<tr>
<td>Emergency C-section</td>
<td>10</td>
<td>12</td>
<td>3</td>
<td>$\chi^2 (4, N = 129) = 33.30, p = .000$</td>
</tr>
</tbody>
</table>

*Note. NS = not symptomatic; PS = partially symptomatic; FS = fully symptomatic.*
Chi-square analyses revealed that a history of trauma (exposure to man-made disasters) was associated with being fully symptomatic. Complications of the baby, a vaginal delivery, and a planned cesarean section were associated with being partially symptomatic. Lastly, a history of trauma (sexual assault/rape, murder/suicide, exposure to a natural disaster), unplanned/emergency cesarean section, complications of the mother, fear of death or injury to self or baby, whether the birth experience went as planned, and the gender of the professional assisting in delivery were associated with both intensities of symptomology (fully symptomatic and partially symptomatic). Regarding gender, male and female professionals were both associated with symptomology.

Inferential Statistics

Hypothesis 1 (Relationships among Variables)

The first hypothesis, that a significant positive relationship will emerge between perceptions of poor medical staff support and both negative cognitions regarding the self and the world and postpartum PTSD symptoms, was examined using a series of bivariate correlations (See Table 2). Total scores from the PTSD-Q and the PLDS, and two subscale scores from the PTCI (Negative Cognitions about Self and Negative Cognitions about the World) were entered into a bivariate correlation. Results indicated that posttraumatic stress symptom severity was statistically significant and positively correlated with more poorly perceived medical staff support, negative cognitions about the self and negative cognitions about the world. Given the results of the series of bivariate correlations, support for Hypothesis 1 was found.

Hypothesis 2 (Negative Cognitions About the Self as a Moderator)

A hierarchical multiple regression was used to explore the hypothesis, that when controlling for trait anxiety, as measured by the STAI, the effect of the perception of poor
medical staff support, as measured by the PLDS, on postpartum PTSD symptom severity, as measured by the PTSD-Q, will vary as a function of women’s negative cognitions about the self, as measured by the PTCI Self subscale. PLDS total scores and Negative Cognitions About Self subscale scores were centered to reduce multicollinearity, based on recommendations by Frazier, Tix, and Baron (2004), before the product terms of the PLDS (predictor) and Negative Cognitions About Self (moderator) scores were calculated. A moderated multiple regression was performed with trait anxiety entered in the first step to control for the effects of this construct on the additional analyses. Next, poor support and negative cognitions about the self were entered in the second step and were found to account for 66.8% of the variability in PTSD symptom severity over and above that of trait anxiety. There was a significant change in $R^2$ in this second step (See Table 4). The interaction term, poor support x negative cognitions about the self, was entered in the third step to evaluate the unique contribution of the interaction term to the total variance in the PTSD symptoms criterion. Note that a significant $R^2$ change at step three of a moderated multiple regression is indicative of a significant moderation effect (Frazier et al., 2004). The change at the third step in the current study was significant ($\Delta R^2 = .042, p < .001; B = .092, p < .001$), although small, indicating that the relationship between poor staff support and greater PTSD symptom severity differed somewhat across levels of negative cognitions about the self. Given that the interaction was significant, slopes were plotted with high levels of the moderator reflecting one standard deviation above the mean of Negative Cognitions About the Self subscale scores and low levels of the moderator reflecting one standard deviation below the mean of the subscale scores. Results indicated that both main effects were significant (See Figure 1.) Therefore, the third hypothesis was supported in that negative cognitions about the self were found to
moderate the relationship between poor staff support and greater PTSD symptom severity (See Table 4).

Table 4

Summary of Moderated Multiple Regression for Staff Support and Negative Cognitions About the Self Predicting PTSD Symptom Severity

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td>.292*</td>
<td></td>
</tr>
<tr>
<td>STAI</td>
<td></td>
<td>.540*</td>
<td></td>
</tr>
<tr>
<td>Step 2 (Main Effects)</td>
<td></td>
<td>.668*</td>
<td>.376*</td>
</tr>
<tr>
<td>PTCI Self</td>
<td></td>
<td>.470*</td>
<td></td>
</tr>
<tr>
<td>PLDS</td>
<td></td>
<td>.436*</td>
<td></td>
</tr>
<tr>
<td>Step 3 (Interaction)</td>
<td></td>
<td>.709*</td>
<td>.042*</td>
</tr>
<tr>
<td>PTCI Self X PLDS</td>
<td></td>
<td>.092*</td>
<td></td>
</tr>
</tbody>
</table>

Note. STAI = State-Trait Anxiety Scale; PTCI Self = Posttraumatic Cognitions Inventory (Negative Cognitions about Self subscale); PLDS – Perceptions of Labour and Delivery Scale.

Unstandardized regression coefficient reported for the interaction. Beta-weights reported for control variable and main effects.

*p < .05.

Hypothesis 3 (Negative Cognitions About the World as a Moderator)

A second hierarchical multiple regression was used to explore the hypothesis that when controlling for trait anxiety, as measured by the STAI, the effect of the perception of poor medical staff support, as measured by the PLDS, on postpartum PTSD symptom severity, as measured by the PTSD-Q, will vary as a function of women’s negative cognitions about the world, as measured by the PTCI World subscale. PLDS total scores and Negative Cognitions About the World subscale scores were centered before the
product terms of the PLDS (predictor) and PTCI World subscale (moderator) scores were calculated. A moderated multiple regression was performed with the trait anxiety entered in the first step to control for the effects of this construct on the additional analyses. Poor support and negative cognitions about the world were entered in the second step and were found to account for 63.7% of the variability in PTSD symptom severity indicating that these variables were able to explain additional variance in the criterion when controlling for trait anxiety. The change in $R^2$ was significant at step 2 (See Table 5). Next the poor support x negative cognitions about the world interaction term was entered in the third step to evaluate the unique contribution of the interaction term to the total variance in the PTSD symptoms criterion. The change in regression weights at the third step was significant ($\Delta R^2 = .037, p < .001; B = .049, p < .001$), indicating that the relationship

*Figure 1.* The interaction between poor staff support and negative cognitions about the self predicting PTSD symptoms.
between poor medical staff support and greater PTSD symptom severity differed across levels of negative cognitions about the world. Following the significant interaction, the slopes were plotted with high levels of the moderator reflecting one standard deviation above the mean of Negative Cognitions About the World subscale scores and low levels of the moderator reflecting one standard deviation below the mean of the subscale scores. Results indicated that both main effects were significant (See Figure 2). Therefore, the third hypothesis was supported in that negative cognitions about the world were found to moderate the relationship between poor staff support and greater PTSD symptom severity (See Table 5).

Table 5

Summary of Moderated Multiple Regression for Staff Support and Negative Cognitions About the World Predicting PTSD Symptom Severity

<table>
<thead>
<tr>
<th>Regression Steps</th>
<th>β</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td>.292*</td>
<td></td>
</tr>
<tr>
<td>STAI</td>
<td></td>
<td>.540*</td>
<td></td>
</tr>
<tr>
<td>Step 2 (Main Effects)</td>
<td></td>
<td>.637*</td>
<td>.345*</td>
</tr>
<tr>
<td>PTCI World</td>
<td></td>
<td>.337*</td>
<td></td>
</tr>
<tr>
<td>PLDS</td>
<td></td>
<td>.488*</td>
<td></td>
</tr>
<tr>
<td>Step 3 (Interaction)</td>
<td></td>
<td>.673*</td>
<td>.037*</td>
</tr>
<tr>
<td>PTCI Self X PLDS</td>
<td></td>
<td>.049*</td>
<td></td>
</tr>
</tbody>
</table>

Note. STAI = State-Trait Anxiety Scale; PTCI Self = Posttraumatic Cognitions Inventory (Negative Cognitions about the World subscale); PLDS = Perceptions of Labour and Delivery Scale.

*Unstandardized regression coefficient reported for the interaction. Beta-weights reported for control variables and main effects.

*p < .05.
Figure 2. The interaction between poor staff support and negative cognitions about the world predicting PTSD symptoms.

Hypothesis 4 (Negative Cognitions about the Self as a Mediator)

A series of three hierarchical multiple regression analyses were conducted to explore the hypothesis that negative cognitions about the self, as measured by the PTCI Self subscale, mediated the relationship between poor medical staff support, as measured by the PLDS, and PTSD symptom severity, as measured by the PTSD-Q. In each series of analyses, trait anxiety was entered as a control variable. The following regression equations were estimated: (a) the mediator (negative cognitions about the self) was regressed on the predictor (poor support); (b) the criterion variable (PTSD symptoms) was regressed on the predictor (poor support); and (c) the criterion variable (PTSD symptoms) was regressed on both the predictor (poor support) and the mediator (negative cognitions about the self) simultaneously.
After controlling for trait anxiety, poor support significantly predicted negative cognitions about the self, ($\Delta R^2 = .076, p < .001; \beta = .304, p < .001$), thus fulfilling the first requirement for mediation. After controlling for trait anxiety, poor support was significantly related to PTSD symptoms, ($\Delta R^2 = .276, p < .001; \beta = .579, p < .001$), which fulfilled the second requirement for mediation. To test for the third and fourth requirements for mediation, poor support and negative cognitions about the self were entered simultaneously in the third regression as discussed above. Negative cognitions about the self significantly predicted PTSD symptoms ($\Delta R^2 = .242, p < .001; \beta = .678, p < .001$). Further, the effect of poor support on PTSD symptoms was less than in the second equation ($\Delta R^2 = .134, p < .001; \beta = .436, p < .001$) after negative cognitions about the self was partialled out. Taken together, the third and fourth requirements for mediation were thus met (See Figure 3). However, the relationship between the predictor and the criterion was not completely reduced to non-significance. According to Frazier et al. (2004), when the regression weight for the predictor in this final step drops, but not to non-significance, partial mediation, rather than perfect mediation, occurs. The Sobel test (Sobel, 1986), referred to as the product of coefficients approach, was then conducted to determine the significance of the indirect effect of the predictor on the criterion through the mediator. Results indicated a significant reduction in the beta-weight for poor support when negative cognitions about the self was simultaneously entered ($t = 4.81, p < .001$). Thus, Hypothesis 4 was partially supported.

**Hypothesis 5 (Negative Cognitions about the World as a Mediator)**

A series of three hierarchical multiple regression analyses were conducted to explore the hypothesis that negative cognitions about the world, as measured by the PTCI World subscale, mediated the relationship between poor medical staff support, as
measured by the PLDS, and PTSD symptom severity, as measured by the PTSD-Q. In each series of analyses, trait anxiety was entered as a control variable. The following regression equations were estimated: (a) the mediator (negative cognitions about the world) was regressed on the predictor (poor support); (b) the criterion variable (PTSD symptoms) was regressed on the predictor (poor support); and (c) the criterion variable (PTSD symptoms) was regressed on both the predictor (poor support) and the mediator (negative cognitions about the world) simultaneously.

After controlling for trait anxiety, poor support significantly predicted negative cognitions about the world, \((\Delta R^2 = .060, p = .001; \beta = .270, p = .001)\) thus fulfilling the first requirement for mediation. After controlling for trait anxiety, poor support was significantly related to PTSD symptoms, \((\Delta R^2 = .276, p < .001; \beta = .579, p < .001)\), which fulfilled the second requirement for mediation. To test for the third and fourth requirements for mediation, poor support and negative cognitions about the world were entered simultaneously in the third regression as discussed above. Negative cognitions about the world significantly predicted PTSD symptoms \((\Delta R^2 = .166, p < .001; \beta = .500,\)
Further, the effect of poor support on PTSD symptoms was less than in the second equation after negative cognitions about the world was partialled out (ΔR² = .179, p < .001; β = .488, p < .001). Taken together, the third and fourth requirements for mediation were thus met (See Figure 4). However, the relationship between the predictor and the criterion was not completely reduced to non-significance, indicating partial mediation. The Sobel test (Sobel, 1986) was then conducted to determine the significance of the indirect effect of the predictor on the criterion through the mediator. Results indicated a significant reduction in the beta-weight for poor support when negative cognitions about the self was simultaneously entered (t = 2.70, p < .001). Thus, Hypothesis 5 was partially supported.

Figure 4. Standardized regression coefficients for the relationship between poor staff support and PTSD symptoms as mediated by negative cognitions about the world. The standardized regression coefficient between poor support and PTSD symptoms controlling for negative cognitions about the world is in parentheses. *p = .001; **p < .001.
CHAPTER IV
DISCUSSION
Purpose and Major Findings of the Study

The purpose of the current study was to investigate the relationship among women’s perception of poor medical staff support, women’s negative cognitions of their birth experiences, and postpartum PTSD symptom severity after controlling for trait anxiety. It was hypothesized that (a) a positive relationship would emerge between perceptions of poor medical staff support and both negative cognitions regarding the self and world and postpartum PTSD symptom severity, (b) when controlling for trait anxiety, the effect of the perception of poor medical staff support on postpartum PTSD symptom severity would vary as a function of women’s negative cognitions about the self, (c) when controlling for trait anxiety, the effect of the perception of poor medical staff support on postpartum PTSD symptom severity would vary as a function of women’s negative cognitions about the world, (d) when controlling for trait anxiety, the perception of poor medical staff support will indirectly influence PTSD symptom severity via negative cognitions about the self, and (e) the perception of poor medical staff support will indirectly influence PTSD symptom severity via negative cognitions about the world.

Results indicated that perceptions of poor medical staff support were statistically significant and positively correlated with greater PTSD symptom severity. Further, negative cognitions about the self and the world were both significantly and positively correlated with greater PTSD symptom severity. Negative cognitions about the self and the world were both found to moderate the relationship between poor staff support and greater PTSD symptom severity. Also, negative cognitions about the self and the world
were both found to partially mediate the relationship between poor staff support and
greater PTSD symptom severity.

Hypothesis 1 (Relationships among Variables)

Hypothesis 1 predicted that perceptions of poor medical staff support and
negative cognitions about the self and the world would be positively correlated with
postpartum PTSD symptom severity. As predicted, poor medical staff support was
strongly correlated with PTSD symptoms. This is consistent with previous studies which
revealed a link between postpartum women perceiving that they had received inadequate
information, experienced little involvement in decision-making, and experienced limited
choices and then later developing postpartum PTSD symptoms (Beck, 2004; Creedy et
al., 2000; Czarnocka & Slade, 2000; Lyons, 1998; Soet et al., 2003).

Although not previously studied, the current researcher found a strong correlation
between postpartum women’s specific negative cognitions about the self and the world
and the development of postpartum PTSD symptoms. These findings are consistent with
current cognitive models of general trauma which establish that an individual’s negative
appraisal following a traumatic event, rather than exclusively the objective characteristics
of the event itself, leads to psychological and physiological distress (Ehlers & Clark,
2000; Foa & Rothbaum, 1998; van der Kolk, 1996). Further, researchers in the general
trauma literature found that negative cognitions about the self were strongly correlated
with PTSD symptoms, whereas negative cognitions about the world were only
moderately correlated (Dorfel et al., 2008). In the current study, it was found that
negative cognitions about the self and the world were highly correlated with each other
\( r = .750 \). Similarly, other researchers have found high correlations between the self and
the world in samples of various types of trauma (Beck et al., 2004; Foa et al., 1999). It is
noteworthy that one of these constructs may be highly influenced by the other and thus, may not be measuring separate unitary constructs. Therefore, in future studies, researchers may want to study negative cognitions about the self and the world together.

**Hypotheses 2 and 3 (Moderation Effects)**

The primary researcher predicted in Hypotheses 2 and 3 that the effect of the perception of poor medical staff support on postpartum PTSD symptoms will vary as a function of women’s negative cognitions about the self and negative cognitions about the world. As predicted, negative cognitions about the self and negative cognitions about the world were both found to moderate the relationship between poor staff support and greater PTSD symptom severity. This suggests that poor staff support is associated with greater PTSD symptoms under conditions of greater negative cognitions. Similarly, researchers in the general trauma literature have found converging evidence that there are more negative, dysfunctional cognitions among individuals who have experienced a trauma compared to non-traumatized individuals (Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Resick & Schnicke, 1993). The mechanisms by which perceptions of poor medical staff support and negative cognitions may interact to influence symptoms of postpartum PTSD remains to be investigated. Foa et al. (1999) suggested that some individuals enter “the traumatic experience with the notion that the world is extremely safe and that they are extremely competent” (p. 304). These individuals, therefore, have rigid positive concepts that make it difficult to assimilate the traumatic experience. On the other hand, according to Foa et al., the current trauma may prime existing rigid negative “schemas of the world as a dangerous place and oneself as incompetent” in individuals who had experienced previous trauma (p. 304). Acquiring a better
understanding of these mechanisms of influence has significant theoretical and clinically pragmatic implications.

Another important observation regarding Hypothesis 2 is that negative cognitions about the self and the world both accounted for a large percentage of the variance in PTSD symptoms *above and beyond* trait anxiety. Most studies do show an association between anxiety and postpartum PTSD. In one study, anxiety was found to play a significant role. Maggioni et al. (2006) stated, “Perceived [medical staff] support may influence, buffer, or increase women’s reactions to the [birth] events but only in a sample of very anxious subjects” (p. 88). However, Soderquist et al. (2006) found no association between trait anxiety and an increased risk for postpartum PTSD. The current study adds to the growing body of literature reflecting the view of the majority of researchers that many factors, not just the personality structure of women, interact to influence postpartum PTSD symptoms (Ayers et al., 2008; Olde et al., 2006; Slade, 2006). It is, therefore, prudent to avoid the simplistic notion that the development of trauma is due exclusively to excessive emotionality in women.

*Hypotheses 4 and 5 (Mediation Effects)*

The primary researcher predicted in Hypotheses 4 and 5 that negative cognitions about the self and the world would mediate the relationship between poor medical staff support and PTSD symptom severity. As predicted, negative cognitions about the self and negative cognitions about the world were both found to partially mediate the relationship between poor staff support and greater PTSD symptom severity. This suggests that as women reported more negative cognitions, these cognitions explained more of the PTSD symptomology, leaving less to be explained by perceptions of poor medical staff support. It is also important to keep in mind the following assertion of Baron and Kenny (1986):
“From a theoretical perspective, a significant reduction demonstrates that a given mediator is indeed potent, albeit not both a necessary and a sufficient condition for an effect to occur” (p. 1176). These overall findings are consistent with Foa and Rothbaum’s (1998) theory regarding the trauma of rape in which they suggest that negative cognitions about the self and the world mediate the development of PTSD.

There was a strong magnitude of effect of both poor support and negative cognitions on PTSD symptoms, which suggests that both constructs should be considered when developing prevention models. There was also evidence from the mediation analysis to suggest that women’s perceptions of factors occurring during labor (poor medical staff support), made significant independent contributions to PTSD symptom severity, which is likely an important target of preventive intervention as discussed in the clinical implications section below. This notion is consistent with findings from other postpartum research (Beck, 2004; Creedy et al., 2000; Soet et al., 2003).

Theoretically, there are conceptual distinctions between moderators and mediators in cognitive social psychology. In this study, both moderators and mediators separately provide distinct information about the process or processes underlying the symptoms of postpartum PTSD. According to Baron and Kenny (1986), “moderation implies that the causal relation between two variables changes as a function of the moderator variable” (p. 1174). In the current study, the moderation effect revealed that women with high ratings of perceptions of poor staff support were more likely to experience PTSD symptoms when they had more negative cognitions about the self than when they had less of these negative cognitions (e.g., the self is incompetent or inadequate). This same pattern was found when examining negative cognitions about the world (e.g., the world is indiscriminately dangerous).
Regarding mediation, Baron and Kenny (1986) postulated that the “effects of stimuli on behavior are mediated by various transformation processes internal to the organism” (p. 1176). The current study suggests that there is an internal psychological process in women that intervenes between the perception of poor medical staff support and PTSD symptoms: specifically, negative cognitions about the self and the world. Further, this mediation effect suggests that women’s perceptions of poor staff support accounted for their negative cognitions, which accounted for their PTSD symptom severity, but only partially. The partial mediation effect indicates that there are additional mediating factors that account for the outcome.

In summary, moderator and mediator effects in this study are distinct. Baron and Kenny (1986) stated, “Whereas moderator variables specify when certain effects will hold, mediators speak to how or why such effects occur” (p. 1176). Applying this conceptualization to the current study, women with higher ratings of perceptions of poor staff support were more likely to experience PTSD symptoms when their negative cognitions about themselves and the world were higher (i.e., moderation). Additionally, and independently, the relationship between poor support and PTSD symptoms may be explained, in part, by the impact that poor support has on women’s negative beliefs about themselves and the world (i.e., mediation).

Ancillary Findings

In addition to examining the main hypotheses in the study, additional analyses yielded interesting findings worth mentioning. For example, the current study exemplifies the complexity of interacting etiological factors in the development and maintenance of postpartum PTSD symptoms. Specifically, there is converging evidence in the postpartum literature that a history of trauma is associated with greater PTSD symptom
severity (Cohen et al., 2004; Soet et al., 2003). In the current study, several types of prior trauma were reported by symptomatic women including sexual assault/rape, murder/suicide, and exposure to natural disasters and man-made disasters. These types of trauma were significantly related to PTSD symptoms severity. An unexpected finding was that a history of childhood sexual abuse was not significantly associated with PTSD symptom severity. This is in contrast to well-established findings in the general trauma literature (Cougle, Timpano, Sachs-Ericsson, Keough, & Riccardi, 2010).

It is noteworthy that in the current study, individuals who were symptomatic for PTSD were not more likely to report a past mental health problem such as anxiety or depression. This is in contrast to some postpartum research (Czarnocka & Slade, 2000; Maggioni et al., 2006), but consistent with others (Leeds & Hargreaves, 2008). Clearly, more research is needed to clarify the relationship between postpartum PTSD and not only postpartum depression, but other anxiety disorders and substance abuse for example.

Both genders of assisting medical professionals were significantly associated with PTSD symptoms severity. Although current findings did not reveal an association among medical interventions and medications used during labor and delivery and PTSD symptoms, mode of delivery did emerge as a significant factor. All three modes of delivery (vaginal, planned cesarean section, and unplanned/emergency cesarean section) were significantly associated with partially symptomatic women. Emergency cesareans had the strongest association followed by vaginal births, then planned cesarean sections. Interestingly, all three women in the current study who were fully symptomatic for PTSD had unplanned emergency cesarean sections. Taken together, these results are consistent with other postpartum research findings (Creedy et al., 2000; Leeds & Hargreaves, 2008; Ryding et al., 1998c; Soderquist, et al., 2002). Researchers have found that other risk
factors, such as perceptions of poor medical staff support, have been associated with PTSD in women who have undergone both cesarean sections and normal vaginal deliveries. According to Olde et al. (2006), this might suggest that “objective obstetrical procedures may become traumatic under certain circumstances” (p. 11). Thus, there are important implications here regarding the development of preventive intervention models.

Not surprisingly, women who reported experiencing medical complications for themselves or for their baby or who reported fear that they or their baby might be injured or die also reported more partial to full symptomology in the current study. These factors are relate to Criterion A for PTSD in the DSM-IV-TR (American Psychiatric Association, 2000), which requires exposure to a traumatic event and an intense emotional reaction. Similar findings are prevalent in both qualitative and quantitative studies (Czarnocka & Slade, 2000; Ballard et al., 1995).

Finally, researchers have found that discrepancies between women’s pre-birth expectations and their actual birth experience can be related to negative emotional outcomes (Czarnocka & Slade, 2000; Maggioni et al., 2006; Sjogren, 1997). In the current study, there were significantly more partially to fully symptomatic women who reported that their birth experience did not go as they had planned or expected.

In summary, these ancillary findings point to factors that might influence the effect of perceptions of poor support and negative cognitions on postpartum PTSD symptom severity. For example, the abrupt transitions (both psychologically and physiologically) that occur in emergency cesarean sections, foiled expectations about the monumental experience of birth, and fearing for the life of one’s child could carry
different meanings, and therefore, different perceptions and cognitions for individuals giving birth.

Limitations

Several limitations of the current study should be considered. The sample is not representative of all women giving birth in the United States. For example, the study included mostly upper-middle income, well-educated, married, non-Latina White women who had only one or two children and sufficient (non-medical) support during labor and delivery. Further, the study included only women who had given birth in United States hospitals or clinics. The expectations and beliefs surrounding childbirth are influenced greatly by one’s sociocultural environment. Further, according to Creamer (1995), “The way in which a traumatic event is appraised and interpreted may be largely influenced by cultural expectations and norms” (p. 55). Foa et al. (1999), in the general trauma literature, found that in a sample of traumatized individuals with PTSD (N = 601) older participants and African American participants scored higher on the Negative Cognitions About the World subscale compared to the other two subscales of the PTCI. Therefore, the results of this study might not generalize to ethnic minorities, disadvantaged populations, large families, women with inadequate support systems, and women who deliver outside of hospitals and clinics (i.e., home births).

Regarding the recruitment of participants, the researcher cannot speculate about influences organizations might have had over an individual woman’s decision to participate. For example, some of the online organizations that posted an invitation for the current study appeared to be proponents of vaginal births after cesarean section (VBACs), natural childbirths, and/or home births, while others appeared to be proponents of hospital births and/or the medical management of childbirth. A strength of this study
was that several different types of venues, with access to women throughout the United States, were used for recruiting.

There might be differences in online samples, such as those in the current study, and community samples. For example, Ayers, Harris, Sawyer, Parfitt, and Ford (2009) found “clear differences” between internet and community samples of postpartum women with PTSD (p. 203). In their study, participants were recruited to either cross-sectional internet studies or longitudinal community studies and the researchers found that “internet samples over-represented symptomatic women” (p. 203). In the current study, prevalence rates for postpartum PTSD symptoms were similar to those in other United States and international studies. However, the extent of postpartum PTSD symptoms was likely underestimated in this study because women who delivered premature or stillborn babies or who experienced the death of their baby within 24 hours were excluded. Otherwise, the mean PTSD-Q score might have been higher. Further, PTSD symptoms might have been underreported by women in the current study due to a social desirability effect. Cultural stereotypes depict motherhood as being a positive experience; therefore, some participants might have been unwilling to express dissatisfaction with birth if they delivered a healthy baby. However, the anonymous nature of the data collection procedure of this study was a strength in that it hopefully ameliorated social desirability effects. Additionally, PTSD symptoms might have been more prevalent if support had been lacking in the current study. Researchers have found that support from non-medical staff, such as a partner, during labor and delivery and during the postpartum period serves as a protective factor against the development and maintenance of PTSD (Czarnocka & Slade, 2000; Lemola et al., 2007). As it was, 100% of the participants in the current study reported receiving the support they wanted during labor and delivery.
Although participants were asked about a history of trauma, no efforts were made in the current study to assess for preexisting PTSD symptoms. Therefore, no conclusions can be made about whether symptoms were preexisting or whether they developed in the postpartum period. Ayers and Pickering (2001), in a prospective study, found that a small percentage (2.8%) of women did develop PTSD in the postpartum period, which was not a continuation of the disorder in pregnancy. Also of concern is the overlapping of symptoms between postpartum depression and postpartum PTSD including a sense of foreshortened future, sleep disturbance, and fatigue (Czarnocka & Slade, 2000; White et al., 2006). Although participants were asked about a history of mental health problems such as depression and anxiety, no conclusions can be made about comorbidity with postpartum PTSD at the time of the study. Further, some of the normal symptoms following childbirth such as sleep deprivation and hypervigilance (about the baby), are similar to symptoms of PTSD. These symptoms might be due to varying hormone levels and anxiety associated with the requirement of new motherhood. With this in mind, the current study was designed to avoid some of these confounds as much as possible by excluding the six-weeks postpartum period in which a woman’s body reverts to a non-pregnancy state.

In reviewing the statistical analysis of the data, two limitations were discovered: (a) multicollinearity and (b) small moderation and mediation effect sizes. Participants’ perceptions of poor medical staff support, as well as their negative cognitions about themselves and the world, were all highly correlated with postpartum PTSD symptom severity. Thus, the predictive value of individuals’ perceptions and cognitions might be unstable and/or redundant with respect to other variables. Furthermore, caution must be used when interpreting the moderation and partial mediation effects that were found in
the study. These effects were small, which limits the inferences that can be made. In the current study, average scores on the Negative Cognitions About Self subscale were lower compared to a sample of participants experiencing mixed traumas (e.g., sexual assault, non-sexual assault, and accidents) (Hagenaars et al., 2010). Additionally, in the current study, average scores on the Negative Cognitions About the World were consistently lower than in previous research involving mixed traumas (Dorfel et al., 2008; Hagenaars et al., 2010). This could be due to the exclusion in the current study of women whose baby did not survive at least 24 hours following birth and who had experienced premature birth, which involves increased rates of morbidity and mortality, and thus, more vulnerability to stress reactions.

Theoretical and Clinical Implications

The current study can be understood in the context of cognitive theories which stress that not only the event itself, but a person’s cognitive appraisal of a stressful event, leads to psychological and physiological distress (Creedy et al., 2000; Czarnocka & Slade, 2000; Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Lazarus & Folkman, 1984; Ryding et al., 1998a). Foa and Rothbaum also suggest that an individual’s excessively negative appraisals and personal meaning of the traumatic event are associated with the maintenance of PTSD.

In the wake of postpartum PTSD, the personal, relational, and societal implications can be far-reaching for women and their families and can pose a grim public health concern. Women who experience intrusive memories of a traumatic birth can develop sexual avoidance (O’Driscoll, 1994), and secondary tokophobia (fear of childbirth following a traumatic delivery) (Hofberg & Brockington, 2000). Ryding (1993) found that some women who experienced severe pain, poor support, or fear that their
baby might die during childbirth were more likely to request a planned cesarean section for a subsequent birth in order to avoid a similarly distressing birth experience. In a study by Czarnocka and Slade (2000), women who were symptomatic for PTSD were “more likely to have decided not to go ahead with future planned pregnancies based on their labour and delivery (negative) experience” (p. 41). Similarly, Beck (2004) found that some women who had experienced a traumatic birth underwent elective sterilization procedures to avoid any chance of future childbirth trauma.

Additionally, researchers have found inadequacies in prefrontal cortex functioning in individuals with PTSD, which is associated with diminished cognitive activation and compromise of executive functioning (Rothbaum, Kozak, Foa, & Whitaker, 2001; van der Kolk, 1996). Individuals with PTSD typically have abnormally high levels of stress hormones and when reminded of the traumatic event, have increases in heart rate, skin conductance, and blood pressure (van der Kolk). Taken together, these altered physiological responses may result in somatic complaints and overall poor health. Additionally, in an attempt to numb intrusive thoughts associated with a traumatic event, individuals are at a high risk for developing unhealthy coping strategies (e.g., alcohol or other drug dependence) (Sartor et al., 2010).

In addition to the deleterious effects on the health and well-being of new mothers, PTSD can negatively affect an individual’s ability to parent effectively. Albers (2005) argued that not only is a “safe birth” an appropriate goal of maternity care, “[A new mother’s] optimal health should be a high priority of caregivers because newborn well-being depends so greatly on her health and functional status, thereby equipping her to undertake the complex and demanding task of mothering an infant with confidence” (p. 68). There is empirical evidence that anxious mothers tend to be more intrusive and less
sensitive in their interactions with their infants in the first year (Feldman, Greenbaum, Mayers, & Erlich, 1997). Further, themes in qualitative studies of women with postpartum PTSD have revealed that the infant might be a reminder of the traumatic delivery, eliciting intrusive re-experiencing of the trauma, feelings of resentment toward the infant, and subsequently the need to avoid the infant (Allen, 1998; Ballard et al., 1995). The emotional numbing and avoidance symptoms of PTSD might also impair mother-infant bonding. A maternal history of trauma experienced in childhood and adulthood is related to additional parenting problems including abuse potential, punitiveness, psychological aggression, child neglect, and physical punishment (Banyard, Williams, & Siegel, 2003; Cohen, Hien, & Batchelder, 2008). Women with a history of trauma also reported decreases in overall parenting satisfaction compared to women without such a history (Banyard et al., 2003).

Difficulties resulting from PTSD have additional relationship implications. Women have reported negative effects of a traumatic birth experience on their relationship with their partner, including difficulty with intimacy, poorer communication, and feeling abandoned (Nichols & Ayers, 2007). Given that partner support is considered a protective factor against the development and maintenance of postpartum PTSD, marital disharmony can be an especially significant problem.

Functional impairment associated with PTSD in the general population is estimated to be an annual loss of productivity of more than three billion dollars in the United States (Breslau et al., 1998). Moreover, PTSD is associated with higher rates of medically unexplained physical symptoms and higher health care costs among women, even after controlling for depression and medical illnesses (Walker et al., 2003). Given
the deleterious personal, relational, and societal impact of postpartum PTSD, evidence-based mental health care for birthing mothers is critical in terms of prevention.

Opportunities for intervention are possible for both acute stress reactions and for PTSD symptoms at varying levels: primary prevention, secondary prevention, and tertiary prevention. The ideal is to prevent postpartum PTSD from developing in the first place. Implementing effective ways to identify women prior to delivery who are at risk for developing postpartum PTSD could serve as a preventive strategy. In the current study, trait anxiety and a prior trauma history are predisposing factors that were found to be associated with PTSD symptoms, which is consistent with other studies in general trauma and postpartum PTSD (Soet et al., 2003; Shavel, 1996; van der Kolk et al., 1996). Cognitions that are present prior to delivery might function as a predisposing risk factor. For example, Foa et al. (1999) proposed that individuals with rigid negative concepts about the self and the world prior to a traumatic event might render them more vulnerable to the development of PTSD. Assessing women for these various predisposing factors during the perinatal period would give health care providers valuable information for meeting the emotional needs of their patients.

Targeting precipitating factors related to labor and delivery might be another effective place to start as evidenced by the strong association between poor staff support and PTSD symptoms in the current study. Findings in postpartum research reveal that during labor and delivery women desire collaboration in decision making, to be treated with respect, and to be informed about what is done to them (Beck, 2004; Creedy et al., 2000; Soet et al., 2003). Lack of knowledge about these and other event characteristics that predict PTSD, as well as lack of initiative to prevent factors that predict PTSD could inadvertently result in iatrogenesis by those whose job it is to care for childbearing
women. Therefore, preventive models are needed that serve to decrease the perception of poor staff support. Effective models might include training for medical students and medical professionals consisting of structured programs in communication skills, mentoring programs in which mutual respect and empathy are modeled, and education regarding the emotional needs of peripartum women. Researchers in the medical education literature have suggested that similar training, involving the communication of humanistic values and attitudes, is most beneficial during medical school (Markakis, Beckman, Suchman, & Frankel, 2000). For example, in a longitudinal study on changes in medical students’ empathy during medical school, Hojat et al. (2009) found that a significant decline in empathy occurred during the third year of training and persisted until graduation.

Additional precipitating factors identified in the current study that should be considered in preventive strategies include fear, unplanned/emergency cesarean sections, medical complications, and long labor. In the current study, as in other research, there was a significant correlation between women’s fear of death or injury for themselves or their baby during childbirth and postpartum PTSD symptoms (Ayers, 2007). Therefore, as Ayers has suggested, healthcare workers could reassure women in order to minimize the perception of life-threat (as appropriate) and to provide emotional support during childbirth. The same would be beneficial for women experiencing medical complications for themselves or their baby. Moreover, Leeds and Hargreaves (2008) found that the unexpectedness of procedures in childbirth was significantly associated with postpartum PTSD symptoms. In the current study, almost half (45%) of participants reported that their birth experience did not go as they had planned or expected. Therefore, it is prudent for medical professionals to be vigilant about the need for providing additional
information and support when the unexpected occurs. As discussed previously, perceptions of poor medical support have been associated with PTSD in women who have undergone cesarean sections. However, the same is true for women who have experienced normal vaginal deliveries. Therefore, it is imperative for medical staff to understand that “objective obstetrical procedures might become traumatic under certain circumstances” (Olde et al., 2006, p. 11). Furthermore, there was evidence in the current study that a long labor (> 12 hours) was significantly and positively associated with PTSD symptoms. Protocols could be developed that provide information and reassurance and that elicit input from patients and their support persons at specified intervals in cases when labor is prolonged and/or not advancing as expected. Carlton, Callister, & Stoneman (2005), in discussing nurses ethical “obligation to advocate for childbearing women …,” recommend that nurses “[c]ontribute to a unit culture that values evidence-based practice coupled with support of laboring women” (p. 151). Finally, as a preventive strategy, it would also be advantageous to advocate for hospital policies that promote women-centered maternity care.

Secondary prevention includes early intervention. Increasing awareness of the avoidance, intrusion, and hyperarousal symptoms of postpartum PTSD for perinatal women and their families and the potential for developing the disorder might serve to facilitate early intervention when needed. Information is readily and broadly available via the media and medical professionals on the symptoms of postpartum depression, while unfortunately, little is conveyed about symptoms associated with postpartum PTSD. Furthermore, as many as 30% of women will develop some symptoms of PTSD following birth and longitudinal studies indicate that postpartum PTSD does not always spontaneously remit (Czarnocka & Slade, 2000; Leeds & Hargreaves, 2008; Soderquist et
Unfortunately, health care providers do not routinely screen for postpartum PTSD. However, it is important that they do so - preferably at various intervals following birth. It is also important to keep in mind that postpartum depression and postpartum PTSD are highly comorbid (Czarnocka & Slade; White et al., 2006). Screeners high in specificity can help differentiate the two disorders. Differentiation is important because there are neurobiological alterations that are unique to PTSD and thus, treatment procedures that are unique to PTSD.

In a review of the postpartum counseling literature, there was consensus among most researchers regarding the importance of providing women with opportunities to talk about distressing birth experiences (Gamble et al., 2005). These opportunities can be made available through debriefing, which is another early intervention approach. Debriefing typically involves a single session soon after birth (e.g., within 72 hours) in which there is a review of the traumatic event, including thoughts and feelings, a narration of the details of the event, and normalizing of stress reactions. This could give health care providers an opportunity to listen for specific negative cognitions about the self and the world. However, results on the efficacy of debriefing in reducing symptoms of affective disorders are inconsistent in the postpartum literature (Gamble et al.; Small, Lumley, Donohue, Potter, & Waldenstrom, 2000). Ryding, Wijma, & Wijma (1998b), on the other hand, described a brief counseling intervention (e.g., three to four sessions) that resulted in a reduction in traumatic stress reactions following emergency cesarean sections.

Tertiary prevention usually involves treatment after a diagnosis is established. As found in the current study, negative cognitions about the self and the world were significantly associated with PTSD symptom severity with self cognitions explaining
slightly more of the PTSD symptomology than world cognitions. These factors had not been studied previously in a sample of postpartum women and the findings have important implications for the treatment of postpartum PTSD. For example, according to a current and prominent theory in the general trauma literature, an individual’s excessively negative appraisals and personal meaning of the traumatic event are associated with the maintenance of PTSD (Foa & Rothbaum, 1998). Addressing the specific postpartum negative cognitions of the self and the world via cognitive restructuring as a component of interventions such as Prolonged Exposure Therapy and Cognitive Processing Therapy might have promise. These therapies have proven to be quite successful in reducing symptoms of PTSD in general trauma samples (Rizvi, Vogt, & Resick, 2009). A relatively new theoretical model of coping with trauma is posttraumatic growth of which cognitive processing is an important component. Posttraumatic growth is conceptualized as significant positive change resulting from a traumatic event. It would be interesting to investigate posttraumatic growth following cognitive processing of negative cognitions about the self and the world and perceptions of poor medical staff support.

Suggestions for Future Research

As previously discussed, sociocultural factors have a great influence on women’s expectations and beliefs surrounding childbirth. Therefore, there is a need to investigate the impact of ethnic minorities, disadvantaged populations, large families, and lack of support on postpartum PTSD, especially in United States samples which have received little attention in the literature. Additionally, more research is needed to find ways to identify women who are at risk of developing postpartum PTSD. PTSD screeners,
specifically designed for perinatal and postnatal women, should be developed and healthcare providers should routinely utilize them.

The Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) has been validated with samples of various types of trauma. The current study extended those findings to include a postpartum sample and provided evidence that negative cognitions about the self and the world are significantly associated with postpartum PTSD. Further research is needed to continue to identify cognitions specific to childbirth and to determine how these cognitions are similar and different from those associated with other traumas and from those associated with postpartum depression. Examples of cognitions that might be unique to a traumatic birth are extreme disappointment and lack of fulfillment. Given the findings in the current study, further research is also needed to explore the relationship between negative cognitions about the self and the world. These constructs were found to be highly correlated and thus might not be measuring separate constructs. Better knowledge of specific cognitions could lead to a more parsimonious and effective means of not only examining risk factors for postpartum posttraumatic symptoms, but facilitating cognitive processing therapies as well.

Existing cognitive therapies need to be tested with a postpartum PTSD population, keeping in mind that there might be unique factors to consider. For example, women’s thoughts following childbirth can be dynamic rather than static. Waldenstrom (2004) found that women who experienced an emergency cesarean section, severely painful labor, dissatisfaction with intra-partum care, and unanswered questions at two months postpartum changed their assessment of childbirth from a positive experience in a more negative direction over the course of a year. As another example, individuals do not expect to repeat most types of traumatic experiences, yet some women will desire to have
another child. As previously discussed, some women who experience a negative birth will elect to have a cesarean section, which has greater risks, and others will elect to avoid subsequent childbirth experiences altogether even when they want another baby (Beck, 2004; Ryding, 1993; Wijma, 1997). Therefore, there should be components in intervention models that prepare women for re-experiencing childbirth – an event that was once perceived as traumatic. Lastly, researchers have found that poor environmental support is associated with maintenance of PTSD symptoms severity (Lemola et al., 2007); yet, in many cases women experience extended confinement due to caring for their newborn. Strategies for optimizing support for postpartum women should be part of intervention models.

Further quantitative research assessing factors that contribute to perceptions of poor medical staff support is needed. Additionally, qualitative research might be helpful to better understand, conceptually, the interactions between medical staff and childbearing women. From these findings, evidence-based practices could be developed. For instance, utilizing what perinatal researchers know about predictors of postpartum PTSD, it would be advantageous to develop a model that prepares women for the emotional transition from a natural event (vaginal delivery) to a pathophysiological event (surgical delivery), which is associated with greater risks both medically and psychologically. Birth events can change quickly, be unexpected, and be accompanied by feelings of intense fear, disappointment, confusion, helplessness, and loss of control (Creedy et al., 2000; Soderquist et al., 2002). Whether to implement the model as preparation for the possibility of problems or as support while problems are unfolding could be researched as well. Based on the finding of the current study, a component designed to educate medical staff about the emotional needs of women during stressful
birth transitions would be necessary to include in the model. Randomized controlled trials and dissemination studies might then be implemented to test the efficacy and effectiveness of such models.

Conclusions

The purpose of the current study was to examine the relationship among perceptions of poor medical staff support, negative cognitions about the self and the world, and postpartum PTSD symptom severity. Although researchers have examined the variables in various contexts, this is the first study to evaluate the specific negative cognitions about the self and the world in relation to perceptions of poor medical staff support in a sample of postpartum women. Findings revealed similar prevalence rates of postpartum PTSD symptoms as those reported in United States and international samples. Consistent with studies in the general trauma literature, specific negative cognitions were found to predict symptoms of PTSD. Additionally, consistent with studies in the postpartum literature, perceptions of poor medical staff support were found to predict symptoms of PTSD. When controlling for trait anxiety, there were both moderation and partial mediation effects. From these results we can infer that women with higher ratings of perceptions of poor staff support are more likely to experience PTSD symptoms when their negative cognitions about themselves and the world are higher (i.e., moderation). Additionally, we can infer that the relationship between poor support and PTSD symptoms may be explained, in part, by the impact that poor support has on women’s negative beliefs about themselves and the world (i.e., mediation).

As evident in this study and other studies, many factors contribute to the development of stress reactions following childbirth. The current study adds to previous postpartum literature by demonstrating that there is a significant relationship between
postpartum PTSD and two prominent factors: poor medical staff support and dysfunctional cognitions. These findings help to elucidate the nature of the outcome of poor medical staff support. Therefore, future researchers and clinicians should expand the knowledge base of cognitions which might be uniquely related to traumatic birth experiences and thus, the development and maintenance of postpartum PTSD. They might also want to consider additional ways to lessen the impact of event characteristics such as poor medical staff support as a means of preventing or minimizing possible stress reactions in perinatal women. Taken together, the current study has important implications for both mental health and medical professionals who care for childbearing women.

Not only is childbirth a rite of passage, it becomes part of the fabric of a woman’s identity and a significant chapter in her life story that will be recounted with mirth or woe, as the case may be, for generations to come. As described in this study and consistent with a growing body of research, a traumatic birth experience can have far-reaching, long-lasting, and grim consequences for women and their families. Thus, the optimal psychological health of perinatal and postnatal women should be an area of judicious attention for both medical and mental health professionals.
APPENDIX A

DEMOGRAPHIC AND BIRTH CHARACTERISTICS QUESTIONNAIRE

The following questions are used to gather information about the types of women participating in this study. Please take a few moments to describe yourself and your birth experience.

1. What is your age? _____

2. What is your race/ethnicity?
   ___ African American/Black     ___ Non-Latina White
   ___ Hispanic/Latina           ___ Asian American
   ___ Native Hawaiian/Other Pacific Islander
   ___ American Indian/Alaskan Native
   ___ Other (specify) __________

3. What is your marital status?
   ___ married          ___ separated           ___ divorced           ___ never married
   ___ not married/living with a partner       ___ not married/ living alone

4. Please check which of the following describes your educational experience:
   ___ did not complete high school or receive a GED (General Education Diploma)
   ___ completed high school
   ___ received a GED (General Education Diploma)
   ___ took some college courses
   ___ completed an Associate’s Degree
   ___ completed a Bachelor’s Degree
   ___ completed a Master's Degree
   ___ completed a six-year Specialist Degree
5. What is your yearly household income?
   __ less than $10,000
   __ $10,000 – $25,000
   __ $26,000 - $50,000
   __ $51,000 - $75,000
   __ $76,000 - $100,000
   __ over $100,000

6. How many pregnancies have you had? ____

7. How many children have you given birth to? ____

8. Prior to this delivery, have you had a mental health problem such as depression or
   anxiety?  ____ yes  ____ no

9. Have you ever experienced or directly witnessed any of the following? Please check all
   that apply:
   __ childhood physical and/or sexual abuse
   __ robbery or mugging
   __ physical attack/beaten up
   __ sexual assault/rape
   __ involved in a serious motor vehicle accident in which someone was killed or
     seriously injured
   __ death of a loved one due to an accident
   __ murder or suicide
___ injury or property damage due to fire, weather, or other natural event
___ man-made disaster such as terrorist attacks
___ some other shocking or terrifying experience

Note: The following questions pertain only to your most RECENT childbirth experience:

10. Did you carry your baby AT LEAST 37 weeks (3 weeks prior to your due date) before giving birth?  ____ yes  ____ no

11. Please list your baby’s birth date.  ____ day  ____ month  ____ year

12. Was your baby born in a hospital or a birthing center?  ____ yes  ____ no

13. Was your baby delivered by a (please check only one response):
   ___ midwife  ___ obstetrician  ___ primary care physician
   ___ medical student/resident  ___ nurse  ___ other/don’t know

14. Was the person who delivered your baby male or female?  ____ male  ____ female

15. Did you give birth to multiples (i.e. twins, triplets, etc.)?  ____ Yes  ____ No

16. Did you plan a natural childbirth (e.g., childbirth with little or no medication or medical intervention)?  ____ yes  ____ no

17. Did your birth experience go as you had planned or expected?
   ____ yes  ____ no  ____ don’t know

18. How was the baby delivered?
   ___ vaginal  ___ planned cesarean  ___ unplanned/emergency cesarean

19. Did you receive any of the following obstetrical interventions during labor and delivery?
   forceps  ____ yes  ____ no  ____ don’t know
   vacuum suction device  ____ yes  ____ no  ____ don’t know
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episiotomy  ____ yes  ____ no  ____ don’t know
(an incision to make the vaginal opening larger)

20. Did you receive pain reducing medications during labor or delivery?
   ____ yes  ____ no  ____ don’t know

21. Did you receive medication to start your labor and/or to keep it going?
   ____ yes  ____ no  ____ don’t know

22. Did you experience a long labor (12 hours or more)?
   ____ yes  ____ no  ____ don’t know

23. Did you experience any complications during or following birth? Complications
   include events or conditions like those listed below.
   ____ yes  ____ no  ____ don’t know
   • hemorrhage (excessive bleeding of the uterus)
   • ruptured uterus (tearing open of the uterus)
   • shoulder dystocia (baby’s shoulder gets stuck in the birth canal)
   • inverted uterus (uterus turns inside out)
   • breech or other abnormal positions of the baby in the birth canal

24. Did your baby experience any complications during or following birth?
   Complications include events or conditions like those listed below.
   ____ yes  ____ no  ____ don’t know
   • admittance into the Neonatal Intensive Care Unit (NICU)
   • low birth weight (below 5 pounds 8 ounces)
   • fetal distress (abnormal heart rate)
   • breathing problems/ not enough oxygen
   • premature birth (before 37 weeks/3 weeks before your due date)
25. During your labor and/or delivery were you afraid that either you or your baby would be injured or might die?  ____ yes  ____ no

26. Did your baby survive more than 24 hours following birth?  ____ yes  ____ no

27. Were there others with you during labor and delivery (besides the medical staff) who provided you with the support you wanted? (e.g., partner, friend, doula, etc.)  ____ yes  ____ no

28. Were you denied the presence of a particular support person(s) (besides the medical staff) during labor and/or delivery?  ____ yes  ____ no

29. Was your baby placed for adoption?  ____ yes  ____ no
APPENDIX B

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE NOTICE OF COMMITTEE ACTION

THE UNIVERSITY OF SOUTHERN MISSISSIPPI
Institutional Review Board
118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 11041302
PROJECT TITLE: Women’s Cognitive Appraisal of Their Birth Experience as Predictive and Maintaining Factors of Postpartum Posttraumatic Stress Symptom Severity
PROPOSED PROJECT DATES: 01/07/2011 to 01/10/2012
PROJECT TYPE: Dissertation
PRINCIPAL INVESTIGATORS: Lauren C. Spooner
COLLEGE/DIVISION: College of Education & Psychology
DEPARTMENT: Psychology
FUNDING AGENCY: N/A
HSPRC COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 04/19/2011 to 04/18/2012

[Signature]
Lawrence A. Hosman, Ph.D.
HSPRC Chair

[Signature]
4-20-2011
Date
APPENDIX C

AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT TITLED:

Women’s Cognitive Appraisals of Their Birth Experience as Predictive and Maintaining Factors of Postpartum Posttraumatic Stress Symptom Severity

Purpose: The purpose of this study is to examine women’s postpartum stress levels through their perceptions and cognitions related to labor and delivery.

Description of Study: Participating individuals will be asked to complete questionnaires related to various ways women think about their labor and delivery experience. The survey will take an estimated 30 – 40 minutes to complete. Participation in this project is completely voluntary.

Benefits to the participant: Participants might benefit from the study by experiencing increased self-understanding. Additionally, they might benefit by gaining a sense of helping the public at large. For example, by investigating the factors related to postpartum stress, we can gain information that can be used to increase positive psychological outcomes for women following birth. Identifying these factors and mothers who are at risk of developing postpartum stress can lead to better preventive intervention models. Further, information obtained from this study can be used to inform future research in maternal mental health. An incentive for participation is a one-dollar donation to the Postpartum Support International, an organization that supports families during pregnancy and during the postpartum period.

Risks: Foreseeable risks associated with the proposed project are minimal. During and after completing the questionnaires, the participants might experience some negative feelings; however, it is unlikely that this will be more than would be expected in
daily interactions. Participants will be provided with a list of resources on the survey website should participation in the study make them aware of a need for mental health assistance. The University of Southern Mississippi has no mechanism to provide compensation for subjects who may incur injuries as a result of participating in research projects such as this one. While participants are encouraged to complete the survey, there is no penalty for withdrawing from this project at any time.

Confidentiality: All efforts will be made to protect participant’s privacy and to maintain the confidentiality of the data acquired throughout this project. Individual participants will not be identified by name; rather, the computerized data will be maintained numerically with no identifying information. This website is maintained by a secure online survey service provider, Psych Surveys (www.psychsurveys.org). To ensure privacy, obtained data will only be accessible via a secure password by the researchers associated with this study.

Subject’s Assurance: Whereas no assurance can be made concerning results that may be obtained (since results from investigational studies cannot be predicted), the researcher will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and subjects may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to the primary researcher, Lauren Spooner, M.S. (Lauren.Spooner@eagles.usm.edu) or Bonnie C. Nicholson, Ph.D. (Bonnie.Nicholson@usm.edu). This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the
Chair of the Institutional Review Board, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406, (601) 266-6820.

To participate in the study please click the box next to “I agree” below. By clicking the box next to "I agree," you are acknowledging that you have been informed of the purpose, benefits, and risks of participating in this study and been given the opportunity to ask questions and have them answered to your satisfaction. By clicking the box next to “I agree," you are consenting to participation in this study and stating that you are at least 18 years of age or older.
REFERENCES


