An exploration into type of trauma and dissociation experienced in the development of post-traumatic stress disorder

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Pacific University
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AN EXPLORATION INTO TYPE OF TRAUMA AND DISSOCIATION
EXPERIENCED IN THE DEVELOPMENT OF POST-TRAUMATIC STRESS DISORDER

A DISSERTATION
SUBMITTED TO THE FACULTY
OF
SCHOOL OF PROFESIONAL PSYCHOLOGY
PACIFIC UNIVERSITY
HILLSBORO, OR

BY
FRANCESCA J. PISCITELLI, M.S.

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Abstract

This study aimed to investigate the relationship between PTSD symptoms, peritraumatic dissociation, and dissociation symptoms across trauma types. Four types of trauma survivors were compared: motor vehicle accident survivors (MVA), sexual assault survivors (SA), alternate forms of trauma (AT), and multiple/mixed trauma survivors (MT). Each group was assessed using the following measures: Posttraumatic Stress Disorder Checklist (PCL-S), Dissociative Experiences Scale (DES), and Peritraumatic Dissociative Experiences Questionnaire (PDEQ-SRV). A total of 79 non-clinical participants were surveyed online. Results were analyzed using t-tests, a MANOVA, and Persons Product Moment Correlations. Findings showed that individuals with multiple traumas had higher levels of PTSD symptoms than motor vehicle accident survivors, sexual assault survivors, and alternate trauma survivors. In addition, sexual assault survivors reported statistically significantly higher scores on the peritraumatic dissociation measure in comparison to motor vehicle accident survivors. No statistically significant difference was found across the dissociation symptoms measure and type of trauma experienced. When comparing the measures, a positive relationship was found between PTSD symptoms and peritraumatic dissociation, and between PTSD symptoms and dissociation symptoms. A discussion of the results along with implications for future research and treatment for trauma survivors will be reviewed.

Key Words: Dissociation, PTSD, Trauma, Peritraumatic Dissociation, Treatment of Trauma
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Introduction

The inquiry into the causes and development of Post-Traumatic Stress Disorder (PTSD) has been examined for as long as individuals have presented with symptoms of this disorder. Official recognition of emotional and cognitive symptoms following a traumatic event was developed in the first edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM, American Psychiatric Association, 1952) in which the diagnosis was titled “Gross Stress Reaction.” This diagnosis was primarily associated with combat-related trauma and it was not until the development of DSM-III (American Psychiatric Association, 1980) that research was conducted into alternate forms of trauma, changing both the conceptualization of the disorder and the title to what is now known as PTSD. Even now, the concept of PTSD continues to change with the recent DSM-5 (American Psychiatric Association, 2013) no longer classifying PTSD as an Anxiety Disorder, but as a Trauma- and Stressor- Related Disorder.

The current conceptualization of PTSD in the DSM-5 focuses on four behavioral symptom clusters: re-experiencing and intrusion, negative alterations in cognitions and mood, arousal and reactivity, and avoidance (American Psychiatric Association, 2013). In addition, two specifiers are available: With Delayed Expression for cases in which full PTSD criteria are not met until 6 or more months post trauma and With Dissociative Symptoms for individuals who experience persistent or recurrent depersonalization or de-realization.

Few studies have addressed dissociation at the time of the traumatic event or as part of the presentation of PTSD. Hart, Nijenhuis, and Steele (2005) stated that this is due to disagreement as to what defines “dissociation,” with some individuals describing this as “dissociative flashback episodes,” while others argue that avoidance and numbing symptoms are
dissociative. Further still, researchers debate how much of a role dissociation plays in PTSD symptoms, and if dissociation is best explained by one of the dissociative disorders, separate from PTSD.

Dissociative states consist of symptoms such as out of body experiences, gaps in memory not due to ordinary forgetting, and distortions in visual perceptions (Bremner et al., 1998). The DSM-5 describes dissociative disorders as a disruption of consciousness, memory, identity, perception, emotion, body representation, motor control, and/or behavior (American Psychiatric Association, 2013). Specific dissociative symptoms are described as disruptions in awareness and behavior (positive symptoms), or an inability to access information and/or to control mental functions (negative symptoms), such as the experience of amnesia (American Psychological Association, 2013). The limited number of studies that have been conducted on the relationship between dissociation and PTSD have found that dissociative symptoms are an integrated part of the long-term response individuals have to trauma (Bremner, & Brett, 1997; Bremner et al., 1992; Morgan et al., 2001). Milot et al. (2013) propose that "PTSD and dissociation are two related but different constructs" (p.122).

Researchers have just begun to review the potential role of peritraumatic dissociation (dissociation experienced at the time of trauma) in relation to the development of PTSD symptoms, both in alternate forms of trauma (e.g., unexpected loss of a loved one, refugees, and natural disasters) and in individuals belonging to multiple trauma groups (Keane, Marx, & Sloan, 2009; Kelley, Weathers, McDevitt-Murphy, Eakin, & Flood, 2008; van der Velden & Wittmann, 2008). Limited studies have been conducted examining whether people who experience different types of trauma present with different configurations of PTSD symptoms (Ingram, 2008) and no studies have specifically evaluated different forms of trauma types in relation to the
amount of dissociation symptoms experienced. This can create a problem in the diagnosis and treatment of individuals with this disorder.

Most of the literature on trauma has historically been conducted with the veteran or military population. Sexual assault and motor vehicle accident survivors have been studied to a lesser degree. Limited research has been conducted on alternate forms of trauma (e.g., natural disasters, life altering accidents), or with individuals who have experienced multiple or mixed forms of trauma. Each of these trauma types warrants investigation.

The prevalence rates of trauma are alarming. The current military and veteran population is estimated at 1.3 million, with approximately 30% of combat soldiers experiencing PTSD (Military.com Benefits, 2011). Over 272,000 individuals were sexually assaulted in 2006 (Bureau of Justice Statistics, 2008) and it is reported that around one third of these will develop some form of PTSD (National Center for Victims of Crime & Crime Victims Research and Treatment Center, 1992). Motor vehicle accident survivors represent an even larger population, with over three million individuals involved in a car accident each year. It is estimated that 20%-45% of these individuals will experience PTSD symptoms at some point as a result of the motor vehicle accident (Blanchard & Hickling, 1997). Non-sexual assault survivors are defined as individuals who have experienced any form of physical abuse whether it is by a partner, committed when they were a child, or by a family member. Current estimates state that around 960,000 individuals experience violence from a partner and 3.3 million children experience physical abuse annually (DVRC, 1998; NCANDS, 2005). Individuals who experience non-sexual abuse either as an adult or child are at higher risk of developing PTSD (Glardino, 2011).

The aim of this study was to evaluate whether a relationship exists between type of trauma experienced (combat military trauma [CMT], motor vehicle accident trauma [MVA],
sexual assault trauma [SA], non-sexual assault trauma [NSA], alternate forms of trauma [AT; e.g., natural disasters or other accidents], or multiple/mixed trauma [MT]), and the occurrence of dissociation at the time of the traumatic event, current dissociative symptoms experienced, and the development of PTSD symptoms.

**Review of the Literature**

**PTSD and Dissociation**

Posttraumatic stress disorder (PTSD) is a complex condition in which individuals may experience a wide variety of symptoms after a traumatic event. The National Institute of Mental Health estimates that PTSD has a lifetime prevalence rate of six percent (17 million) of the United States population, with around one percent (3 million) of these being severe cases (NIMH, 2005; PRB, 2005). Studies have found that individuals with PTSD are at an increased risk to experience other mental health disorders, develop health problems, and have higher instances of intimate partner aggression (Keane, Marx, Sloan, & DePrince, 2010; Schnurr & Green, 2004; Walker et al., 2003).

In accordance with criterion set by the American Psychiatric Association (APA) in the current Diagnostic and Statistical Manual (DSM-5), to qualify for a diagnosis of PTSD individuals must experience, witness, learn of an event occurring to a close family member/friend, or experience exposure to details of traumatic event(s) that involved threat of death or serious injury (American Psychiatric Association, 2013). Individuals must present with at least one intrusion symptom, such as intrusive thoughts or memories about the trauma, dreams, dissociative reactions (e.g., flashbacks), psychological reactions to internal or external cues, or psychological distress at exposure to internal or external cues related to the trauma. In addition, a presentation of avoidance to distressing memories, thoughts, or feelings associated to the trauma, and/or avoidance of external reminders of the traumatic event (e.g., places people,
conversations) must also be experienced. At least two cognitive or mood symptoms must also be present, such as an inability to remember aspects of the trauma, chronic negative beliefs about oneself or others, cognitive distortions surrounding the trauma, negative emotional state, diminished interested in activities, feeling disengaged from others, or difficulty experiencing positive emotions. The remaining criterion of PTSD addresses alterations in arousal and reactivity, such as sleep disturbances, hyper vigilance, and irritable behavior. These symptoms must be present for at least one month following the traumatic event. As discussed previously, a new specifier was added: with dissociative symptoms. The dissociative symptoms specifier is utilized when an individual experiences depersonalization (e.g., feeling detached from oneself or the sense of time moving slowly) or derealization (e.g., recurrent experiences of unreality of one’s environment).

The presentation of PTSD varies across trauma types. A study conducted by Kelley et al. (2009) compared PTSD symptom profiles of three different trauma groups: sexual assault, motor vehicle accident, and sudden loss of a loved one. Each group was administered the PCL-S a measure of PTSD symptomatology. Three trauma symptom clusters were utilized: re-experiencing, avoidance/numbing, and hyper arousal. Results found that trauma groups presented with different symptom profiles and showed variation across each cluster. Sexual assault survivors reported significantly higher levels of PTSD symptoms than the other two groups. The motor vehicle accident group showed the lowest levels of PTSD symptoms, except in the hyperarousal cluster. While this study did not specifically address dissociation, it did examine detachment/estrangement which relates to symptoms experienced of dissociation. A significant difference was found across trauma groups, with sexual assault survivors endorsing higher levels of detachment/estrangement than the other two groups, and with motor vehicle
accident survivors endorsing the lowest amount. These results seem to be consistent with other studies in which greater symptom severity occurs more frequently in sexual assault survivors when compared to alternate trauma groups (DePrince, Chu, & Pineda, 2011; Kelley et al., 2009; Norris, Foster, & Weisshaar, 2002; Wechsler-Zimring & Kearney, 2011).

In addition to trauma type, number of traumatic events experienced may also impact an individual’s PTSD symptoms. A recent study conducted by Hagenaars, Fisch, and Minnen (2011) reviewed the effect experiencing multiple traumas has on the frequency and onset of PTSD. The authors assessed 110 individuals diagnosed with PTSD in an outpatient facility across the following domains: trauma characteristics, psychiatric diagnosis, PTSD severity, depressive symptoms, dissociation, anger, shame, guilt, and interpersonal sensitivity. Participants who experienced multiple traumas reported experiencing higher levels of dissociation, guilt, shame, and interpersonal sensitivity when compared to single trauma participants. This is one of few studies that utilize dissociation as a component of PTSD symptoms (Hagenaars, Fisch, & Minnen, 2011).

Theories of Dissociation

The role of dissociation in relation to a traumatic event has been debated prior to the formation of the formal diagnosis of PTSD. Historically, two theories existed as to the purpose of dissociation, both during the time of the traumatic event and in the symptoms experienced afterward. The first theory, summarized by LaCombe (2006), views dissociation as a protective defense mechanism. In this theory, the individual’s cognitive awareness dissociates from the traumatic event which aids the individual in tolerating the overwhelming horror of the traumatic stress. This, therefore, in theory could reduce the chance of an individual experiencing long term psychopathology (Lacombe, 2006).
Another perspective that is predominately adopted by researchers was developed by Pierre Janet, who described the term “psychological dissociation” as the breakdown of memory, identity, and consciousness, and as a strong emotional state that occurs during a traumatic event (Janet, 1889 as cited in Bremner & Brett, 1997). In opposition to the protective defense mechanism theory, Janet further felt that dissociation during trauma would increase the risk for long term dissociative psychopathology (Janet, 1889, 1920 as cited in Bremner & Brett, 1997). Consistent with Janet’s theory, a series of studies conducted throughout the 1980’s and 1990’s found that individuals who responded to traumatic events with dissociative responses were at an increased risk for PTSD and higher levels of dissociative symptoms (Branscomb, 1991; Bremner, Steinberg, Southwick, Johnson, & Charney, 1993; Carlson & Rosser-Hogan, 1991).

Arreola (1999) proposed a dissociative model similar to that developed by Janet. The dissociative model views that a traumatic event may result in an emotional response that includes an individual processing and storing the memory paired with an arousal state. Dissociative symptoms are thought to occur as a way of coping with the individual’s response or reaction to the trauma. Why certain individuals respond to trauma with dissociative symptoms and others do not is still debated. However, researchers suggest variables such as biological and genetic differences, time the trauma occurred, and number of traumas experienced could be important factors that contribute to an individual’s propensity for dissociation (Evren et al., 2011; Hagenaars, Fisch, & Minnen, 2011; Hetzel-Riggin & Roby, 2012).

A recent review of the literature conducted by Ford (2013) found three different models of dissociation and the potential relationship to PTSD. The structural model of dissociation views a division within an individual’s personality where the integration of adverse experiences does not occur. This may result in negative symptoms such as memory loss or physical
paralysis, or positive symptoms such as flashbacks (Nijenhuis & Van der Hart, 2011). The operational model of dissociation conceptualizes dissociation as biological defects in cognitive processing due to the traumatic event. This could consist of an inability to access information at the time of the trauma, or a sense of disconnection that could distort an individual’s perception of their environment (Carlson et al., 2012). The third conceptual model of dissociation is the betrayal trauma theory presented by Goldsmith, Freyd, and DePrince (2012), in which dissociation is viewed as a form of coping resulting from psychological trauma involving betrayal of a primary care giver. Individuals may dissociate from the trauma, and as a result may not view their abuse to be a betrayal of their perpetrator. Typically, this model is utilized with individuals who experience childhood trauma or domestic violence, in which dissociation is a protective adaptation in information processing, due to the dependency a child or partner may have on the perpetrator of the abuse, which could result in a fragmentation of memories in order to allow attachment to occur. These models provide many potential explanations of why individuals may dissociate at the time of their trauma.

In addition to the models discussed above, Simeon (2007) reviewed four models utilized within the field that aim to describe the complex relationship between PTSD and dissociation. The four models are the co-morbidity model, shared risk factor model, a shared pathogenesis model, and same disorder model. The co-morbidity model describes these two disorders (PTSD and dissociation) to be co-occurring by chance and describes these as two completely different disorders. The shared risk factors model assumes that there are shared risk factors for trauma and dissociation, potentially contributing to the interaction between dissociation and PTSD. The third model, shared pathogenesis, views trauma as creating the development of both disorders. However, neurological research has shown that individuals with Dissociative Identity Disorder
without PTSD have HPA axis deregulation different from those seen in individuals with PTSD (Simeon et al., 2001). The final model, same disorder model, proposes that the disorders are really the same phenomenon, only separated due to diagnostic criteria focused on specific symptoms more related to PTSD than dissociation. The author concluded that the first model, the co-morbidity model, best describes PTSD and dissociation as distinct entities that are associated but may differ in their diagnostic explanations (Simeon, 2007).

To further explore the overlap of trauma and dissociation Keane, Marx, Sloan, and DePrince (2010) discuss the interrelationship of these two disorders. The authors provide three hypotheses as to why these disorders co-occur. First, PTSD and dissociation may reflect how individuals who have had traumas occurring younger in life process information. Second, they discuss how high levels of dissociation in some individuals may have a specific type of PTSD. The authors cite Briere, Scott, and Weathers (2005), who found that 56% of participants with a diagnosis of PTSD did report dissociation symptoms when assessed. Finally, the authors propose viewing PTSD symptoms as a part of dissociative symptoms, as in individuals may be able to experience positive symptoms (e.g., traumatic memories) and negative symptoms (e.g., loss of affect) of dissociation, with PTSD as the overarching construct (Keane, Marx, Sloan, & DePrince, 2010).

A review of dissociation as an insufficiently recognized major feature of complex PTSD was conducted by van der Hart, Nijenhuis, and Steele (2005). The authors discussed the current debate about the role of dissociation in PTSD, and the lack of attention that has been given to this aspect of the disorder. The main two reasons expressed by van der Hart, Nijenhuis, and Steele (2005) for this reduction in research is due to the fact that there is confusion regarding the nature of dissociation, amply illustrated by the sheer number of theories reviewed in the
paragraphs above, and also the belief that dissociation is not a central feature of PTSD. The authors argue that any form of trauma involves some dissociation or division of the individual’s personality and that the extent of this phenomenon can be increased based on the number or cluster of traumas one experiences (van der Hard, Nijenhuis, & Steele, 2005).

In review, several theories have been proposed as to the relationship between PTSD and dissociation. Some theorists propose that there is a significant interaction between PTSD and dissociation, whereas others state a more limited relationship exists. More recently, some theorists are proposing that the type of trauma experienced may have an effect on the severity of dissociation experienced, but have not further expanded this to the inclusion of PTSD symptomatology. Overall, no general agreement seems to exist about the etiology of dissociation in relation to trauma and PTSD symptomatology.

**Empirical Support For and Against a Dissociation/PTSD Relationship**

Evren et al. (2009) evaluated the differences between individuals who reported a lifetime diagnosis of PTSD, and the impact this had on their quality of life, in comparison to individuals who did not have a lifetime diagnosis of PTSD. Additional variables assessed were dissociation symptoms and a history of childhood trauma. Participants consisted of 156 alcohol dependent men who were participating in an inpatient treatment facility for their substance use. Overall, no differences were found between the lifetime PTSD participants and the non-lifetime PTSD participants specifically in relation to dissociation and childhood trauma. However, individuals in the lifetime PTSD group who scored higher on dissociation scales also had higher scores on the childhood emotional abuse scales. In addition, individuals who endorsed higher rates of dissociation and lifetime PTSD, had a negative effect on the quality of life components such as physical functioning, general health, and mental health. While the sample size used was very
specific, males with alcohol dependence, this study shows the negative effects of concurrent
dissociation and PTSD (Evren et al., 2011).

A recent study conducted by DePrince, Chu, and Pineda (2011) explored the relationship
between post trauma appraisals (e.g., feelings of betrayal and alienation) in relation to trauma-
related distress (e.g., PTSD symptoms, dissociation). The authors evaluated the results of over
three hundred participants. The sample consisted of an undergraduate university and two
community-based organizations. Type of trauma experienced was classified as interpersonal
(e.g., sexual/physical abuse, childhood abuse) or non-interpersonal (e.g., natural disaster).
Results showed that individuals who reported experiencing interpersonal trauma had higher
scores of PTSD and dissociation at the time of the event. In addition, individuals who had more
recently experienced a traumatic event also showed increased scores in PTSD and dissociation.
Consistent with betrayal trauma theory, participants who reported higher levels of betrayal also
reported lower levels of dissociation, meaning that participants who had an increased awareness
of the betrayal were less likely to experience dissociation from the trauma. In addition, authors
also found that the less likely a participant was to rate the trauma as betrayal the higher
dissociative symptoms were endorsed. This was found more often in the interpersonal trauma
group than in the non-interpersonal trauma group. The authors hypothesize that individuals who
may be dependent on their perpetrator cope with the trauma by dissociating in order to maintain
the relationship and would, as a result, not experience the trauma as a betrayal (DePrince, Chu, &
Pineda, 2011).

A meta-analysis supporting the idea of a positive relationship between dissociation and
PTSD was conducted by Ozer, Best, Lipsey, and Weiss (2008). The authors found that, after a
review of sixty-eight studies, peritraumatic dissociation was the largest indicator of PTSD
symptoms developing in adults. Participants who described having dissociative episodes during or following the traumatic event reported the highest levels of PTSD symptoms. This relationship was found in studies in which six months to three years had passed between the traumatic event and the assessment of PTSD (Ozer, Best, Lipsey, & Weiss, 2008).

In opposition to the stance of dissociation as a major component of PTSD is the work conducted by Davidson and Foa (1991). The authors state that PTSD consists mainly of anxiety symptoms which consist of avoidance, increased arousal, and panic symptoms. In addition, research has shown that amelioration of PTSD symptoms has been successfully achieved by using treatments originally designed for other anxiety disorders (Davidson & Foa, 1991). Work conducted by Feeny, Zoellner, and Foa (2000) found that dissociation symptoms among female assault survivors related to impairment in social functioning, but did not relate to the development of PTSD three months following a trauma. Merckelbach and Muris (2001) conducted a critical examination of self-reported trauma and dissociation. The authors argued that the literature does not strongly represent this relationship. They hypothesized that a confounding variable in the relationship between trauma and dissociation may be at play (e.g., in some studies family pathology was found to be a moderator), and that high scores on the Dissociative Experiences Scale for trauma survivors are not due to dissociation, but other variables such as pseudo memories, heightened suggestibility, and fantasy proneness. The authors state that the relationship between dissociation and PTSD is more complex than originally presented (Merckelbach & Muris, 2001).

This concept was further expanded upon by Gershuny and Thayer (1999) who proposed the concept that dissociation and additional trauma-related distress could relate to fears about death and/or losing control. This is similar to the view posed by Davidson and Foa (1991) that
PTSD is composed of anxiety symptoms and it is the treatment of those symptoms that is most effective. Gershuny and Thayer (1999) were the first to discuss dissociation in relation to different trauma groups. Table 1 summarizes some of the literature review findings in relation to type of trauma and dissociation experienced, both peritraumatic and posttraumatic.

*Table 1. Dissociation experienced across trauma groups (Gershuny & Thayer, 1999).*

<table>
<thead>
<tr>
<th>Trauma Type</th>
<th>Type of Dissociation Experienced</th>
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<tr>
<td>Military Combat</td>
<td>Dissociation experienced during trauma</td>
</tr>
<tr>
<td>Nonsexual Assault</td>
<td>Dissociation was related to PTSD diagnosis and severity of symptoms</td>
</tr>
<tr>
<td>Sexual Assault</td>
<td>Dissociation was not related to PTSD diagnosis but reported higher levels of dissociation compared to control subjects</td>
</tr>
<tr>
<td>Motor Vehicle Accidents</td>
<td>Dissociation experienced during trauma</td>
</tr>
<tr>
<td>Natural Disaster</td>
<td>Dissociation experienced after trauma</td>
</tr>
<tr>
<td>Witnesses to Trauma</td>
<td>Dissociation experienced at higher rates with individuals diagnosed with PTSD</td>
</tr>
</tbody>
</table>

In addition, Gershuny and Thayer (1999) proposed that dissociation relates to cognitive fears of losing control or dying that occur at the time of trauma when loss of control or death was possible or did occur. The authors claim that not all individuals experience dissociation. However, those that do have greater fears about losing control or not being in control at the time of the traumatic experience, resulting in increased levels of dissociation and PTSD symptoms.

This concept was later studied by Gershuny, Cloitre, and Otto (2003) in which 146 females across trauma groups were assessed based on the hypothesis that fear of losing control/death mediates the positive relationship between peritraumatic dissociation and symptoms of PTSD. The results indicated that these fears predicted PTSD severity and did in
fact mediate the relationship between peritraumatic dissociation and PTSD symptoms. However, it is unknown whether these fears of losing control/death are caused or are a consequence of the development of dissociation. Since this study was only conducted on females attending university it is unknown if this would generalize to a more diverse population (Gershuny, Cloitre, & Otto, 2003).

A study conducted by van der Velden and Wittmann (2008) reviewed the predictive value of peritraumatic dissociation for PTSD symptoms across multiple studies that specifically focused on a Type I Trauma, defined as a distinct single traumatic event. In a full literature review, 17 studies met inclusion criteria resulting in six with positive findings, and 11 with negative findings. The six positive findings did find a predictive relationship between dissociation and PTSD symptoms, however only three of these studies found a strong independent predictive value for peritraumatic dissociation and PTSD symptoms. While this review only included individuals who experienced one traumatic event, the authors concluded that pre-trauma mental health problems were better predictors of PTSD symptoms than peritraumatic dissociation (van der Velden & Wittmann, 2008).

A recent study conducted by Milot et al. (2013) reviewed dissociation and PTSD symptoms in children. The authors compared scores on the CBCL-PTSD with the Child Dissociative Checklist (CDC) in a sample of neglected children and adolescents. Findings suggested that child neglect is an important risk factor for both PTSD and dissociation. Their results also indicated that, while there was some overlap between PTSD and dissociation symptoms, there was a statistically significant difference between the two measures (Milot et al., 2013).
As reviewed above, substantial research has been produced on both sides of the debate as to whether or not there is a relationship between dissociation and the development of PTSD symptoms. This study’s aim is not to settle this debate, but to expand upon this literature, specifically by reviewing the role of dissociation across different trauma groups in relation to the development and experience of PTSD symptoms. If differences are found, this could have an effect on treatment implications by aiding in developing treatment methods that target dissociation symptoms based on type of trauma experienced. A brief review of the literature was conducted specifically on the relationship between PTSD and dissociation for the following trauma groups: combat or military trauma (CMT), motor vehicle accident survivors (MVA), assault survivors (SA), alternate forms of trauma (AT; e.g., natural disasters, life altering medical diagnoses, other accidents) and multiple/mixed trauma survivors (MT).

Combat and Military Trauma

A study conducted by Bremner et al. (1992) looked specifically at the role of dissociation in the development of PTSD in Vietnam combat veterans. A total of 85 Vietnam combat veterans were placed into groups: veterans who sought treatment for PTSD (N=53) and veterans who sought treatment for medical problems and did not report PTSD (N=32). Participants were evaluated for PTSD using the Structured Clinical Interview for DSM-III (SCID). Dissociative symptoms were evaluated in both groups using the Dissociative Experiences Scale (DES), which evaluates any current dissociative symptoms being experienced. In addition, the DES was administered to evaluate the amount of dissociation retrospectively at the time of the trauma. A Combat Exposure Scale was also administered in order to measure the level of combat experienced. The authors found a statistically significantly higher level of current dissociative symptoms endorsed by the PTSD group (M=27.0, SD=18.0) then in the non-PTSD group.
(M=13.7, SD=16.0). This finding remained consistent when the difference in level of combat exposure was controlled for using an analysis of covariance across groups. The PTSD group (M=11.5, SD=1.6) also reported they experienced more dissociative symptoms at the time of the trauma than those in the non-PTSD group (M=1.8, SD=2.1). Bremner et al. (1992) concluded that dissociative symptoms are a significant element in the development and severity of response to a traumatic event for military populations.

Another study conducted on the Vietnam veteran population by Bremner and Brett (1997) evaluated dissociative responses to pre-military, combat-related, and post-military trauma, and their relationship to long-term psychopathology. Participants were evaluated on four domains; level of PTSD-specific symptoms, general psychiatric symptoms, number of flashbacks since time of trauma, and general dissociative symptoms. The Mississippi Scale for Combat-Related PTSD and the Brief Symptom Inventory (BSI) were administered to evaluate these four domains. Individuals were also asked to complete a flashback interview, and the Dissociative Experiences Questionnaire to evaluate level of dissociation and severity of PTSD. Correlations were found between the Modified Dissociative Experiences Questionnaire DEQ-M (r(37)=.76, p=.001) and long-term psychopathology measured by using the Mississippi Scale for Combat Related PTSD MSC-R scale (r(50)=.79, p<.001). In addition, significant correlations were found with long term psychopathology using the general psychiatric symptoms measured in the BSI (r(50)=.71, p=.001) and general dissociation DES (r(30)=.43, p=.008). Individuals who reported higher dissociative responses to trauma also tended to report long-term dissociative symptoms measured by the DES and an increased number of flashbacks since the war. While the authors of this study replicated the work of Bremner et al. (1992), it provided the area of
trauma related dissociation research with findings that dissociation in the face of a traumatic event can be a marker of long-term psychopathology.

Recent research has attempted to provide new ways of investigating dissociation. A study conducted by Morgan et al. (2001) looked at peritraumatic dissociation resulting in PTSD and obtained data during a United States (U.S.) Army survival training exercise as opposed to collecting the data retrospectively. A total of 153 combined Special Forces and general infantry soldiers were broken into two groups and asked to complete a battery of assessments. The first group completed the Clinician-Administered Dissociative States Scale (CADSS) immediately after the training exercise, and the second group completed the Brief Trauma Questionnaire in addition to the CADSS a week prior and immediately after the training exercises. Results yielded 96% of participants in the first group to have experienced dissociative symptoms in response to the training exercises and 42% of participants reported dissociative symptoms before the stress occurred. This study found that the perception of a threat to a participant’s life in past circumstances resulted in the report of higher dissociative symptoms both before and after the stressful event. One limitation of this study was sample size, and with limited studies utilizing data collection at a stressful event, the ability to generalize this study is questionable.

To date research on military populations, though fairly limited in scope, has indicated a relationship between peritraumatic dissociation and the development of PTSD symptoms, with increased risk for dissociation in future traumas if dissociation was present during past traumas. The majority of this work, as stated previously, has been conducted and funded by the United States Military using military personnel and veteran populations. This has aided in the development of prevention programs such as the Army’s Comprehensive Soldier Fitness program, which teaches soldiers and their family members the importance of resiliency factors
across five domains (physical, emotional, social, family, and spiritual) in the hope of minimizing
the development of PTSD (U.S. Army Posture Statement, 2009). However, fewer studies have
been conducted on individuals with dissociation in the civilian population experiencing alternate
types of trauma. Therefore it is difficult to detect if the results presented by the military can been
generalized to the civilian population.

**Motor Vehicle Accident Survivors**

Few studies were found in the literature that exclusively addressed PTSD and
dissociation among motor vehicle accident survivors. One study, conducted by Murray, Ehlers,
and Mayou (2002), found evidence that peritraumatic dissociation four weeks after the accident
predicted PTSD symptom severity six months later. In addition, dissociative symptoms were
more predictive of overall PTSD severity than were any other symptoms within the PTSD
diagnostic criteria. Findings that contradict this study were reported by Holeva and Tarrier
(2001), who did not find peritraumatic dissociation to be a predictor of PTSD symptoms among
motor vehicle accident survivors. The authors did find personality traits, specifically narcissism,
to be associated with the development of PTSD.

Bryant and Harvey (2002) evaluated gender differences and the effect this had on the
development of acute stress disorder and PTSD following motor vehicle accidents. A total of
171 participants were assessed 1-month post trauma for acute stress disorder and 6-months post
trauma for PTSD. Researchers found that 93% of females who initially met criteria for acute
stress disorder also met criteria for PTSD, in comparison to 57% of males who met criteria for
acute stress disorder and PTSD. The authors hypothesize that acute stress disorder was a
stronger predictor in females due to the higher dissociative reactions they reported, resulting in
an increase in PTSD symptoms. However, females were also more likely to have reported being
passengers, which may have led to feelings of less control over the motor vehicle accident occurring, which may in turn have resulted in an increase in experienced stress (Bryant & Harvey, 2002). These findings are consistent with Delahanty et al. (1997) who found that individuals who attribute responsibility of the motor vehicle accident to another person are at higher risk of developing PTSD.

A longitudinal study on car accident victims conducted by Blanchard and Hicking (1997) also found motor vehicle accident victims to experience higher rates of PTSD symptoms in comparison to a control group. The authors compared 158 motor vehicle accident survivors to 93 individuals of similar demographics who had not been in an accident. The motor vehicle accident group saw 39.2 percent of its participants develop PTSD within a one year period following the accident. Of those diagnosed with PTSD, fear of dying in an accident, seriousness of an injury, and waiting for a court decision increased the risk of developing PTSD. The researchers also found that those who did experience PTSD in the motor vehicle accident group were more likely to have experienced a previous motor vehicle accident or a prior trauma. While this study did not specifically evaluate dissociation, the authors did ask about event amnesia. However, no statistically significant difference was found between the PTSD vs. Non-PTSD groups on this variable.

For MVA survivors, inconsistent results have been found across studies as to the relationship between dissociation and PTSD symptoms. Some studies found dissociation to be a predictive variable to increased PTSD symptoms; others found no significant relationship between the two variables. While it was consistently found that a lack of perceived control over the accident increased an individual’s risks for developing PTSD, dissociation was not a factor
examined in these studies. Additional research should be conducted to further explore the interactions between PTSD and dissociation for MVA survivors.

**Assault Survivors**

Adults who report being abused both physically and/or sexually report higher levels of dissociation than individuals who do not report abuse (Carlson, Armstrong, Loewenstein, & Roth, 1998; DePrince, Chu, & Pineda, 2011; Gershuny & Thayer, 1999). Unfortunately, often in the literature both sexual assault and non-sexual assault participants are combined, resulting in currently few studies specifically assessing sexual assault victims and non-sexual assault victims, in relation to level of dissociation pre or post trauma. An additional limitation to this research is that the majority of the assault survivor’s studies, whether the focus is on child or adult abuse, are predominantly conducted on women. However a few studies, while conducted with combined sexual assault and nonsexual assault survivors, were found that included samples with both males and females in relation to dissociation. Studies in which sexual assault and non-sexual assault are combined will be reviewed first, followed by studies in which these two populations were separated.

Twaite and Rodriquez-Srednicki (2004) reviewed the relationship between attachment, dissociation, childhood sexual/physical abuse and the development of PTSD among individuals who witnessed the September 11th terrorist attacks. Around 200 participants were assessed (156 females and 128 males) for their level of dissociation symptoms experienced, attachment style, and PTSD symptoms due to a specific life event. The authors found a positive relationship between individuals who had experienced early childhood trauma and increased scores on the PTSD symptom measure. As expected, a negative relationship was found between childhood sexual/physical abuse and attachment style, meaning individuals who experienced early abuse
reported greater difficulty in attaching to others especially after experiencing a traumatic event. The results of this study support the view that poor attachment style and dissociation symptoms are mediating factors in the relationship between childhood abuse and PTSD.

Wechsler-Zimring and Kearney (2011) studied adolescents and the differences in PTSD, dissociation, and depression symptoms across trauma types. A total of 84 adolescents ranging from ages 11-17 years old were interviewed at a state-run residential facility for maltreated youth. Individuals were categorized based on the state’s reason for removing them from the home, resulting in them being placed into one of three categories; neglect without physical and/or sexual maltreatment (n=33), physical and/or sexual maltreatment only (n=20), and neglect with physical and/or sexual maltreatment (n=33). The authors found that individuals who experienced physical and/or sexual maltreatment, regardless of whether or not neglect occurred, reported higher levels of symptoms across all groups. Findings suggest that sexual/physical assault experienced by adolescents resulted in higher levels of trauma symptoms, in comparison to adolescents who only experience neglect (Weschlsler-Zimring & Kearney, 2011).

A smaller study conducted by Birmes et al. (2003) assessed 35 assault victims one day after the trauma and again two weeks after the trauma occurred. Findings indicated that peritraumatic dissociation and acute stress symptoms were associated with the development of PTSD symptoms. In contrast, a longitudinal study on community violence survivors conducted by Marshall and Schell (2002) found that peritraumatic dissociation did not lead to an increase in PTSD symptom severity.

The following studies differentiate sexual assault survivors and non-sexual assault survivors when comparing trauma groups. A longitudinal study conducted by Johansen, Wahl, Eilertsen, and Weisaeth (2007) utilized a non-sexual assault population. The authors found 143
individuals exposed to non-domestic violence (e.g., community violence) across a 12 month period, peritraumatic dissociation and perceived self-efficacy were predictors of PTSD.

Early work conducted by Dancu et al. (1996) reviewed the relationship between PTSD and dissociation among female survivors of criminal assault and rape. This study compared rape (N=74) and nonsexual assault survivors (N=84) to a comparison group of individuals who had not been assaulted in the past year (N=46). Using the Dissociation Experiences Scale (DES) the authors found that assault survivors (rape and nonsexual assault) experienced higher levels of dissociation than the comparison group. When assessed three months later, only participants who experienced rape continued to have higher dissociation scores when compared to the non-assault comparison group. Individuals who had past sexual assault traumas experienced increased dissociation symptoms regardless of the current trauma they had experienced. Interestingly, when the comparison of dissociation symptoms to the development of PTSD was evaluated among both assault groups; the authors found that dissociation symptoms was related to PTSD among the nonsexual assault survivors, and not rape survivors. A potential reason suggested by the authors is that dissociation may be a factor in the development of PTSD, only among certain types of trauma groups. In addition, across groups, dissociation decreased consistently the further removed an individual became from the traumatic event, even though this phenomenon occurred more slowly in the rape survivor group.

Another study conducted by Mulder, Beutrais, Joyce, and Fergusson (1998) evaluated childhood sexual abuse, childhood physical abuse, and mental illness experienced in adulthood, and the role dissociation symptoms may play in the development of mental illness for these childhood traumas. A total of over one thousand participants were sampled from the Canterbury region of New Zealand, with both age and gender evenly distributed across groups compared to
the normal population. The authors found that all three groups experienced high levels of dissociation but that a direct relationship was found only between dissociation and physical abuse experienced as a child and mental illness experienced as an adult. This direct relationship was not found among individuals who experienced sexual abuse as a child but was mediated by a current mental health diagnosis. The authors suggest that individuals who have experienced childhood sexual abuse may be more likely to enter into treatment resulting in a mental health diagnosis. The authors acknowledge that the results they found were not consistent with previous studies which have shown that sexual abuse survivors often endorse dissociative symptoms at a significant level. They hypothesize that their results may have been found due to the non-clinical sample they collected, with the majority of other studies utilizing clinical samples. The authors further implied that the treatment of sexual assault survivors may account for the higher levels of dissociation seen in other studies. These findings are consistent with those of Dancu et al. (1996) who also found non-sexual assault to have a direct relationship with dissociation as opposed to sexual assault survivors, for whom the relationship was mediated by mental illness.

Finally a study conducted by Carlson, Armstrong, Loewenstein, & Roth (1998) evaluated the relationship between PTSD and dissociation while separating sexual abuse and physical abuse traumas. A total of 187 participants at a psychiatric hospital were interviewed, and placed into the sexual abuse group or physical abuse group based on trauma experienced. Individuals were assessed on level of PTSD symptoms (Structured Interview for Posttraumatic Stress Disorder), level of dissociation (Dissociative Experiences Scale), and if they experienced amnesia in relation to the abuse experienced. The authors found a high correlation between sexual abuse participants reporting greater dissociation symptoms, in comparison to physical abuse participants showing only a moderate correlation to dissociation symptoms. In addition,
the authors found that there was a strong positive relationship between the extent of abuse experienced, and later symptoms of PTSD and dissociation across trauma groups (Carlson, Armstrong, Loewenstein, & Roth, 1998).

As stated previously, the majority of the research combines sexual assault and non-sexual assault survivors in relation to the study of PTSD and dissociation. The relationship between peritraumatic dissociation and PTSD appears to be unclear when both of these groups are combined. Some studies have found that peritraumatic dissociation can predict PTSD symptom severity, while others have found no relationship. However, when the groups were studied separately, Johansen, Wahl, Eilertsen, and Weisaeth (2007) found non-sexual assault survivors’ peritraumatic dissociation and perceived self-efficacy to be predictors of PTSD. In addition, researchers have consistently found that sexual assault survivors seem to report more severe PTSD symptoms than other types of trauma (Breslau, Troost, Bohnert, & Lou, 2013; Kelley et al., 2009; Kirz et al., 2001; Ullman & Filipas, 2001). In relation to dissociation, when these two groups were separated, sexual assault survivors seemed to experience higher levels of dissociation in comparison to non-sexual assault survivors. However, there still appears to be some debate over this, specifically in relation to whether a clinical or non-clinical sample was utilized. Very few studies have included specific examinations of dissociation in their exploration of PTSD for both sexual assault and non-sexual assault survivors. Without separation of these two distinct trauma groups, it is unknown how their experience of trauma symptoms may be different or similar. This information is important as it could impact treatment methodology.
Alternate Forms of Trauma

Throughout the literature, alternate forms of trauma have been studied in relation to dissociation and PTSD. Events such as: natural disasters, unexpected life events, and life altering medical diagnosis are the primary types of traumas studied. For example, peritraumatic dissociation and PTSD was studied among individuals who had experienced loss of a pregnancy (Engelhard et al., 2003). In this sample, dissociation predicted PTSD severity, which was mediated by acute symptoms such as memory loss and thought suppression. A similar life altering medical diagnosis study conducted by Kangas, Henry, and Bryant (2005) found that dissociative symptoms and level of distress assessed at the time of diagnosis later proved to be the best indicators of PTSD symptom severity.

A longitudinal study conducted by Van Loey, Mas, Faber, and Taal (2003) studied over 300 individuals who were survivors of burn injuries. Participants were evaluated two weeks, eight weeks, and one year following the traumatic event. Peritraumatic dissociation predicted both symptom development and severity of PTSD across survivors, especially at the one year mark. Additional increase of PTSD symptoms were predicted by other factors such as being female and the overall severity of the burn injury.

Keane, Marx, Sloan, and DePrince (2010) reviewed the literature on the development of PTSD among trauma survivors of natural disasters and terrorism. The authors found studies suggesting that the closer proximity an individual is to a traumatic event, the higher the reported rate of PTSD symptoms. In addition, rates of PTSD initially decreased one year following a natural disaster, but then increased around two years following the same trauma group. While time since the traumatic event will not be a main focus of this study, individuals will be asked to estimate the amount of time since experiencing the trauma.
Minimal research has been conducted on alternate forms of trauma and the relationship this trauma group has to PTSD symptoms and dissociation. Studies that have been conducted, however, consistently found that peritraumatic dissociation was a predictor for individuals to develop PTSD symptomatology. In other words, individuals who reported higher rates of peritraumatic dissociation often later reported higher rates of PTSD. However, the frequency that individuals experience dissociation symptoms following a traumatic event was not addressed. Length of time since the trauma may be a factor in how alternate trauma survivors experience trauma symptoms.

**Multiple/Mixed Trauma Survivors**

This group is defined as individuals who have experienced more than one type of trauma described above. As stated by Gershuny and Thayer (1999), few studies have addressed the issue of individuals who have experienced multiple traumas and the level of dissociation they may or may not experience in relation to PTSD symptoms. It has been hypothesized by van der Hart, Nijenhuis, and Steele (2005) that any form of trauma may involve some dissociation of an individual’s personality, resulting in an increase in the number or cluster of traumas one can experience. The meta-analysis discussed earlier by Ozer, Best, Lipsey, and Weiss (2008) found that multiple traumas did not have an effect on PTSD development. Unfortunately, few studies directly reviewed whether any form of a relationship exists between multiple traumas, the experience of dissociation, and PTSD symptoms.

As discussed previously, the study conducted by Hagenaars, Fisch, and Minnen (2011) found that individuals who experienced multiple traumas had higher rates of PTSD, dissociation, guilt, shame, and interpersonal sensitivity when compared to single trauma survivors. The author’s hypothesis was that this could be due to the individual developing mistrust in the world
due to the multiple negative experiences that occurred. This could result in the individual developing negative cognitions and perceptions about themselves and the world around them (Hagenaars, Fisch, & Minnen, 2011).

Hetzel-Riggin and Roby (2012) also reviewed multiple trauma survivors. The authors looked at the effects gender and trauma type had on peritraumatic dissociation, PTSD symptoms, and general distress. A large sample of 1,503 undergraduate students was obtained, with 58% female and 42% male participants all completing online questionnaires. Participants were classified based on trauma type: experienced a natural disaster, losing a loved one, or interpersonal violence (combining sexual and physical assault). Results indicated that individuals who survived interpersonal violence, or had multiple traumas, showed increased scores on the PTSD measure, peritraumatic dissociation measure, and had higher rates of general psychopathology. In addition, the authors also found that women reported higher levels of distress in comparison to men (Hetzel-Riggin & Roby, 2012).

While few studies have specifically addressed dissociation for multiple trauma groups, other studies indicate that multiple traumas maybe more impactful than single traumas. Bremner et al. (1993) found a relationship between combat trauma, childhood physical abuse, and the development of PTSD for Vietnam veterans. Veterans with PTSD reported higher rates of childhood abuse in comparison to veterans without PTSD. In addition, participants diagnosed with PTSD also had a significantly higher rate of total traumatic experiences, with a mean of 4.6 prior to joining the military, in comparison to participants without PTSD who had a mean of 2.8. This study suggests that multiple types of trauma, specifically childhood physical abuse, may act as an antecedent in the development and severity of PTSD symptoms in response to later traumas.
Studies that did not provide detailed information about the type of trauma experienced will also be discussed in this section, since it is unknown if multiple forms of trauma or mixed types of trauma occurred among these participants. One study conducted by Wittmann, Moergeli, and Schnyder (2006) found that peritraumatic dissociation had low predictive power among trauma survivors who developed symptoms of PTSD. However, a study conducted by Shalev, Peri, Canetti, and Schreiber (1996) found opposite findings, stating peritraumatic dissociation was associated with the development of PTSD.

Individuals who experience multiple traumas consistently endorse higher levels of peritraumatic dissociation and PTSD symptoms in comparison to alternate trauma groups. There is some debate as to whether or not individuals who experience multiple traumas are at a higher risk of developing PTSD, but once PTSD is developed, individuals tend to endorse higher levels of symptomatology. Like with the alternate trauma group, the role of current dissociation symptoms experienced by multiple trauma survivors has not been addressed in the literature.

Summary of the Literature Review

A complete review of the current literature was conducted on multiple trauma types, the relationship between pre and post dissociation, and the potential development of PTSD symptoms. There are a limited number of studies that assessed pre and/or post traumatic dissociation and whether or not this affects the development of PTSD symptoms, specifically across trauma groups. The debate continues as to whether or not peri- and/or post- traumatic dissociation has an effect on PTSD development, with strong support for both sides of the argument. With the current revision of the DMS-5 (American Psychiatric Association, 2013) dissociation symptoms can now be identified as a subtype of PTSD. However, this does not address if the level of dissociation, whether experienced peri- or post- to the traumatic event, has
an effect on the development of PTSD symptoms. If yes, then does the type of trauma experienced play into this relationship? If no, then further research into factors such as fear of losing control/dying could be explored to help understand why some researchers did find a relationship between dissociation and PTSD.

Based on the literature discussed above, there were inconsistent findings among the trauma groups as to whether or not peri- and/or post-trauma dissociation had an effect on PTSD symptoms. Specifically, across a number of trauma groups, including motor vehicle accident, non-sexual assault, alternate forms of trauma, and multiple traumas experienced, all produced contradicting results. Some studies indicated that there was a relationship between dissociation and PTSD development while others indicated that there were mediating factors that produced this effect. Another, major, hole in the literature was the lack of exploration into individuals who had experienced more than one type of trauma, and the effect this has or does not have on dissociation and the development of PTSD.

There were, however, some consistencies found in the literature, specifically in the combat military trauma group where researchers found both peri- and post-traumatic dissociation to be an indicator in the development of PTSD. It was through the study of this population that Bremner et al. (1993) found a relationship between combat trauma, childhood physical abuse, and the development of PTSD, indicating that multiple traumas may result in an increased risk in PTSD. However, it is still unknown the role dissociation peri- or post-traumatic event(s) has on the development of PTSD.

**Purpose of the Current Study**

The goal of this study was twofold. First, this study sought to discover if there are differences in the amount of dissociation experienced at the time of the traumatic event across
different trauma groups, and if dissociation experienced at the time of the trauma had any form of relationship to current PTSD symptoms. Second, this study also sought to evaluate differences in the amount of dissociation symptoms currently experienced across the different trauma groups, and to determine if a relationship existed between dissociative symptoms and PTSD symptom severity. This study also addressed the current lack of research on trauma type, dissociation, and the effects these have on the development of PTSD symptoms. Ultimately, such knowledge could inform treatment options for individuals who have experienced trauma(s).

This study sought to compare six types of trauma survivors: motor vehicle accident survivors (MVA), sexual assault survivors (SA), nonsexual assault survivors (NSA), combat military trauma survivors (CMT), alternate forms of trauma (AF), and multiple/mixed trauma survivors (MT). Each group was assessed using the following measures: the amount of PTSD symptoms experienced with the Posttraumatic Stress Disorder Checklist (PCL-S); the amount of dissociation currently experienced in present symptoms with the Dissociative Experiences Scale (DES); and the dissociation experienced at the time of the event with the Peritraumatic Dissociative Experiences Questionnaire-Self Report Version (PDEQ-SRV).

Based on the literature review, research has suggested that peritraumatic dissociation, or dissociation at the time the trauma occurred, results in greater long term psychopathology and increased risk for the potential development of PTSD (Bennet, 2001). Further, many individuals may concurrently experience symptoms of dissociation and symptoms of PTSD, reflected in the With Dissociative Symptoms specifier for PTSD available in the DSM-5. Also based on previous research, sexual assault survivors tend to experience more intense symptoms of trauma and individuals who have experienced multiple or mixed forms of trauma are also at an increased risk for developing PTSD, but it is unknown if dissociation symptoms have any role in the
increased risk for PTSD or increased symptom severity for these populations (Bremner et al., 1993; Hagenaars, Fisch, & Minnen, 2011; Hetzel-Riggin & Roby, 2011; Kelley et al., 2009; McDevitt-Murphy, Eakin, & Flood, 2008).

To explore the relationship between dissociation and PTSD, two research questions were proposed:

1) Does peritraumatic dissociation result in more severe PTSD symptoms? It was hypothesized that scores indicating greater levels of peritraumatic dissociation would be positively correlated with scores indicating greater levels of PTSD. It was further hypothesized that individuals whose scores indicated clinically significant peritraumatic dissociation would obtain significantly higher mean PTSD symptom severity scores than those individuals whose scores did not indicate clinically significant peritraumatic dissociation.

2) Are current symptoms of dissociation associated with more severe PTSD symptoms? It was hypothesized that scores indicating greater levels of current dissociation would be positively correlated with scores indicating greater levels of PTSD. In addition, it was further hypothesized that participants who scores indicated clinically significant dissociation would obtain significantly higher mean PTSD symptom severity scores than those participants whose scores did not indicate clinically significant dissociation.

To explore the impact of type of trauma experienced by an individual on dissociation and PTSD symptoms, two additional research questions were proposed:

3) Do trauma types vary in peritraumatic dissociation, current dissociative symptoms, and PTSD symptom severity? It was hypothesized that differences in mean scores across measures of dissociation and PTSD would exist based on type of trauma. While the research suggested SA and MT participants would report higher levels of peritraumatic dissociation and PTSD
symptoms in comparison to other trauma groups, insufficient research exists to offer further hypotheses about what other differences would be likely to be observed between groups.

4) Do the relationships observed between peritraumatic dissociation, current symptoms of dissociation, and PTSD symptom severity vary by type of trauma experienced? It was hypothesized that, when broken into trauma type groups, some correlational relationships outlined in questions 1 and 2 above would remain significant while others would not. Again, insufficient research exists to allow for specific hypotheses regarding where the exact differences would lie.

Method

Participants

A total of 82 individuals responded to an online survey, with three participants removed from the sample due to incomplete responses, resulting in a total sample size of 79 (n=79). All participants endorsed being over the age of 18 and having experienced one or more traumatic events. Individuals who had been diagnosed with Acute Stress disorder, individuals who had been diagnosed with a dissociative disorder, and individuals who were unable to read or unable to sign the informed consent form were excluded. Subjects were recruited from social media sites known to the researcher, from universities known to the researcher, and online trauma messaging boards. Non-clinical samples were utilized to increase the ability to apply the study findings to the general population. This study was approved by the Institutional Review Board (IRB) at Pacific University.

Of the 79 participants, 84.8% (n=67) identified as female, 12.7% (n=10) identified as male, and 2.5% (n=2) identified as other. The age of participants were classified in ranges of 10 years: 18-29 years old (n=58, 73.4%), 30-39 years old (n=15, 19%), 40-49 years old, (n=2, 2.5%), 50-59 years old (n=3, 3.8%), and one individual identified in the 60-69 age range. Racial
The background was primarily reported as Caucasian (96.2%), with the remaining individuals identifying as African American/Black, Latino/Hispanic, or other. Individuals were asked to disclose the amount of time that had passed since the most recent trauma, classified in the following ranges: less than one month \((n=6, 7.6\%)\), less than six months \((n=2, 2.5\%)\), one year \((n=7, 8.9\%)\), less than five years \((n=24, 30.4\%)\), or less than 10 years \((n=39, 49.4\%)\), with one participant not reporting. Due to the extremely limited demographic variability, analysis across race, gender, time since the trauma, and age range did not yield any statistically significant results across groups. Table 2 shows the participants and percentages of demographic variables across the trauma groups.

**Table 2: Demographic Variables Across Trauma Groups.**

<table>
<thead>
<tr>
<th>*Survivors</th>
<th>Gender ((n)%)</th>
<th>Age ((n)%)</th>
<th>**Ethnicity ((n)%)</th>
<th>Years Since Trauma ((n)%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVA ((n=13))</td>
<td>Male 30.8, Female 69.2</td>
<td>0, 18-29 69.2, 30-&lt;36 30.8, C 100, B 0, L 0, O 0</td>
<td>(13)</td>
<td>(5) &lt;1, (4) &lt;5, (4) &lt;10, N/A 0</td>
</tr>
<tr>
<td>SA ((n=20))</td>
<td>Male 0, Female 100</td>
<td>(15), 18-29 75, 30-&lt;36 25, C 18, B 1, L 0, O 0</td>
<td>(18)</td>
<td>(2) &lt;1, (3) &lt;5, (15) &lt;10, N/A 0</td>
</tr>
<tr>
<td>AT ((n=17))</td>
<td>Male 23.5, Female 76.5</td>
<td>(13), 18-29 70.6, 30-&lt;36 29.4, C 5, B 10, L 5, O 10</td>
<td>(17)</td>
<td>(2) &lt;1, (6) &lt;5, (8) &lt;10, N/A 1</td>
</tr>
<tr>
<td>MT ((n=29))</td>
<td>Male 6.9, Female 86.2</td>
<td>(2), 18-29 75.9, 30-&lt;36 24.1, C 96, B 3.4, L 20.7, O 37.9</td>
<td>(28)</td>
<td>(6) &lt;1, (11) &lt;5, (12) &lt;10, N/A 0</td>
</tr>
<tr>
<td>Total ((n=79))</td>
<td>Male 12.7, Female 84.8</td>
<td>(67), 18-29 73.4, 30-&lt;36 26.6, C 96, B 1.3, L 1.3, O 18.9</td>
<td>(21)</td>
<td>(15) &lt;1, (24) &lt;5, (39) &lt;10, N/A 1</td>
</tr>
</tbody>
</table>

*MVA= Motor Vehicle Accident Survivors, SA= Sexual Assault Survivors, AT= Alternate Trauma Survivors, MT= Multiple Trauma Survivors

**The following symbols represent Caucasian (C), Black (B), Latino (L), Other (O)**

Participants were categorized based on type of trauma experienced: 36.7% endorsed multiple traumas (MT; \(n=29\)), 25.3% endorsed sexual assault (SA; \(n=20\)), 17.7% reported they had experienced an alternative form of trauma such as sudden death of a loved one (AT; \(n=14\)).
16.5% endorsed a motor vehicle accident (MVA; n=13), and 3.8% reported they had experienced a non-sexual assault (NSA; n=3). Military combat veterans were intended to comprise one trauma type group; however, all participants who endorsed military trauma also endorsed other traumas and were therefore included in the multiple trauma (MT) group. Due to low participation numbers in the non-sexual assault group (NSA; n=3), these responses were placed in the alternate trauma group (AT n=17) due to this consistently being done in other research studies and not wanting to create confounding variables within the sexual assault group (Hetzel-Riggin & Roby, 2011; Twaite & Rodriguez-Srednicki, 2004; Wechsler-Zimring & Kearney, 2011).

**Measures**

Self-report measures in an electronic survey format (Survey Gizmo) were used to assess demographic and trauma type information, current symptoms of PTSD, current symptoms of dissociation, and peritraumatic dissociation, or dissociative symptoms experienced at or around the time the trauma occurred.

**Demographic and Trauma Questionnaire**

A set of demographic and trauma placement questions were combined into one questionnaire developed for use in this study. Due to the length of the three additional measures only the following demographic questions were asked; age, gender, time since the trauma, and ethnicity. Type of trauma an individual had experienced was assessed by asking the participant to indicate which of the following (e.g., motor vehicle accident, combat/military trauma, sexual assault/abuse, physical assault/abuse, natural disaster, loss of a loved one, diagnosis of a major medical condition, terrorist attack, or other [with request to specify]) they had experienced at any point in their life. The participants were allowed to mark more than one traumatic experience,
but were asked to indicate, if possible, which trauma they had experienced to be the most distressing. A copy of this form can be found in Appendix A.

**Posttraumatic Stress Disorder Checklist.**

The Posttraumatic Stress Disorder Checklist, Specific (PCL-S; Weathers, Huska, & Keane, 1991) is a measure that evaluates all DSM-IV (American Psychiatric Association, 2000) symptoms of PTSD in relation to a specific traumatic event. Two additional forms of the measure, the PCL-M for military populations and the PCL-C for civilian populations, are available but were not used due to the variety of trauma groups being explored in this study. The PCL-S is a self-report measure which consists of 17 items that are categorized into the following DSM-IV clusters: items 1-5 are Criteria B (intrusive re-experiencing); items 6-12 are Criteria C (avoidance and numbing); and items 13-17 represent Criteria D (hyper arousal). Each of these items is evaluated on a scale from 1-5, with higher numbers reflective of greater frequency and severity of the given symptom. The total score ranges from 17-85 points, with higher scores on the PCL-S indicating that an individual is experiencing more severe or greater number of symptoms of PTSD. The test authors recommend a cutoff score of 25 or higher to indicate significant distress.

The measure was administered to the following populations in researching the psychometric proprieties of the instrument: war veterans, survivors of sexual assault, and motor vehicle accidents. Both good test-retest reliability (r=0.96) and internal consistency (r=0.97) were found with the PCL-S. In addition, the PCL-S was found to have strong convergent validity with other measures of PTSD, the Mississippi Scale (.85) and the Impact of Events Scale (.90). The measure is often used to screen for PTSD symptoms, assist in diagnosis of PTSD, and monitor symptoms during and after treatment (Blanchard, Jones-Alexander, Buckley & Forneris,
Dissociative Experiences Scale.

The Dissociative Experiences Scale (DES) is a self-report measure that was developed to offer a reliable way of measuring dissociation in both non-clinical and clinical populations (Bernstein and Putnam, 1986). The DES consists of 28 items in which individuals originally placed slashes on 100-mm lines ranging from 0% to 100% indicating how much the experience described in the question related to them. A new version of the assessment was released in which individuals write a percentage from 0% to 100%, in 10% intervals, of how well the information described in the questions relates to them. The total DES score is produced by calculating the mean of the item scores. Individuals with a score of 30 or higher are considered to potentially have a dissociative disorder (Carlson et al., 1993).

The DES has been administered to the following populations: late adolescent college students, individuals with alcoholism, agoraphobia, phobias, other anxiety disorders, PTSD, schizophrenia, multiple personality disorder, and normal adults. The test exhibited good test retest reliability with a coefficient of 0.84 ($p<.0001, N=26$). Discriminate validity was tested using Spearman rank-order correlation between DES scores and age $-.19(p<.01, N=183)$ and DES score and socioeconomic status $-.15(p<.08, N=143; Bernstein and Putnam, 1986)$. All item-scale score correlations were significant, meaning it is a good indicator of both internal consistency and construct validity. The measure was able to distinguish individuals with a dissociative disorder from all other subjects with various disorders (Healthy Places, 2000). A copy of this measure can be found in Appendix C.
Peritraumatic Dissociative Experiences Questionnaire-Self Report Version.

The Peritraumatic Dissociative Experiences Questionnaire- Self Report Version (PDEQ-SRV; Marmar, Weiss, & Metzler, 1997) is a measure developed for individuals to report the amount of dissociative symptoms they were experiencing at the time of the traumatic event. The scale consists of ten items that are rated on a five point scale: 1 (Not at all true), 2 (Slightly true), 3 (Somewhat true), 4 (Very true), 5 (Extremely true). For the purposes of this study a “0 (Not Apply)” option was added to provide individuals an option if they do not experience peritraumatic dissociation. The measure covers symptoms such as: blacking out, feeling as if time is distorted, depersonalization, and confusion. A total score is calculated by adding up the individuals responses, which can range from 0 to 50. Scores on the PDEQ-SRV of 15 or higher indicate an individual may have experienced peritraumatic dissociation (Brooks et al. 2009, Marshall, & Schell, 2002).

A study conducted by Birms (2005) found that there was high internal consistency for the PDEQ-SRV which was measured by Cronbach’s alpha coefficient using the total sample (n = 48) was 0.79. With the internal consistency for the PDEQ-SRV total score was 0.78. A Kolmogorov–Smirnov test indicated that the distribution did not depart from normality, D(48) = 0.09, p > 0.05. Convergent validity was strong and positively correlated with the Stanford Acute Stress Reaction Questionnaire (SASRQ) a measure of dissociation, re-experiencing, avoidance and hyperarousal symptoms. A series of studies have been conducted using the PDEQ-SRV and have found that it correlates strongly with level of PTSD symptoms, level of stress to exposure, and general dissociative tendencies across different populations such as emergency responders and community violence victims (Birms et al., 2005 Marmar, Weiss, Metzler, Ronfeldt, & Foreman, 1996; Marshall & Schell, 2002). A copy of this measure can be found in Appendix D.
Design and Procedure

Participants completed an anonymous online survey. The online survey consisted of a brief overview of the study, informed consent, demographic and trauma questionnaire, and the three assessment measures. Due to the sensitive nature of inquiring about past traumatic experiences, participants were provided with contact information for national mental health resources at both the beginning and end of the survey. The average amount of time it took to complete the study was approximately 15 to 30 minutes depending upon reading level. Participants had an option to have their name placed in a drawing to win one of five $20 dollar Starbucks gift cards for their participation in the study and were able to provide their contact information if they would like to receive a summary of study results. Participant names and contact information were collected in a different survey and separated from their study responses to preserve confidentiality. Participants were free to discontinue the study at any time, but were unable to enter the drawing or receive research information unless they completed the entire study. If a participant withdrew before completing the survey (defined as reaching the final page and answering any question on that page), their survey responses were deleted and not included in the study. The study was approved by this author’s university Institutional Review Board.

Results

The PCL-S measured the frequency and severity of PTSD symptoms endorsed by the participants. Individuals with scores at 25 and above represented a likelihood of experiencing clinically significant amounts of PTSD symptoms. When compared across trauma groups, individuals with MTs had the highest mean score (M=47, SD=15), and 96.5% of MT individuals scored above the clinical cutoff point. Each trauma group’s mean score was above the clinical cutoff point, and the total sample mean score of the PCL-S was 39.6 (SD=14.1), with 86.1% of
individuals obtaining a score greater than 25. Table 3 represents the PCL-S scores for each trauma type.

**Table 3: PCL-S Scores**

<table>
<thead>
<tr>
<th>*Survivors</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>% Above Cutoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVA (n=13)</td>
<td>19</td>
<td>54</td>
<td>30.9</td>
<td>10.7</td>
<td>61.5</td>
</tr>
<tr>
<td>SA (n=20)</td>
<td>23</td>
<td>51</td>
<td>36.5</td>
<td>9.1</td>
<td>90</td>
</tr>
<tr>
<td>AT (n=17)</td>
<td>12</td>
<td>67</td>
<td>37.5</td>
<td>15</td>
<td>82.3</td>
</tr>
<tr>
<td>MT (n=29)</td>
<td>23</td>
<td>73</td>
<td>47</td>
<td>15</td>
<td>96.5</td>
</tr>
<tr>
<td>Total (n=79)</td>
<td>12</td>
<td>73</td>
<td>39.6</td>
<td>14.1</td>
<td>86.1</td>
</tr>
</tbody>
</table>

*MVA= Motor Vehicle Accident Survivors, SA= Sexual Assault Survivors, AT= Alternate Trauma Survivors, MT= Multiple Trauma Survivors*

The frequency of current dissociation symptoms was measured using the DES. A cutoff score of 30 or higher is recommended to indicate that an individual could potentially have a dissociative disorder or experiences clinically significant dissociative symptoms. None of the trauma groups produced a mean score that was above the clinical cutoff point. Even when the total mean score (M=13.3, SD=11.4) was calculated, only 10.1% of individuals scored above the clinical cutoff point of 30. Table 4 represents the DES scores for each trauma type.
Table 4: DES Scores

<table>
<thead>
<tr>
<th>Survivors</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>% Above Cutoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVA (n=13)</td>
<td>.36</td>
<td>21.1</td>
<td>8.2</td>
<td>6.9</td>
<td>0</td>
</tr>
<tr>
<td>SA (n=20)</td>
<td>1.43</td>
<td>36.1</td>
<td>12.5</td>
<td>10.1</td>
<td>10</td>
</tr>
<tr>
<td>AT (n=17)</td>
<td>0</td>
<td>55</td>
<td>13.5</td>
<td>13.7</td>
<td>11.8</td>
</tr>
<tr>
<td>MT (n=29)</td>
<td>2.1</td>
<td>47.5</td>
<td>16.1</td>
<td>12.1</td>
<td>10.3</td>
</tr>
<tr>
<td>Total (n=79)</td>
<td>0</td>
<td>55</td>
<td>13.3</td>
<td>11.4</td>
<td>10.1</td>
</tr>
</tbody>
</table>

*MVA= Motor Vehicle Accident Survivors, SA= Sexual Assault Survivors, AT= Alternate Trauma Survivors, MT= Multiple Trauma Survivors

Symptoms of dissociation at or around the time the traumatic event occurred was measured using the PDEQ-SRV. Scores on the PDEQ-SRV of 15 or higher indicate an individual may have experienced a clinically significant level of peritraumatic dissociation. When compared across groups, SA survivors obtained the highest mean score (M=36.5, SD=9.1), with 90% of individuals scoring above the clinical cutoff point. All of the trauma groups produced a mean score above that of the clinical cutoff point. The mean score of the total participant group on the PDEQ-SRV was 22.8 (SD=9.8), with 70.9% of individuals obtaining a score above 15. Table 5 shows participant’s scores on the PDEQ-SRV across different trauma groups.
Table 5: PDEQ-SRV Scores

<table>
<thead>
<tr>
<th>*Survivors</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>% Above Cutoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVA (n=13)</td>
<td>0</td>
<td>36</td>
<td>16.8</td>
<td>9.9</td>
<td>53.8</td>
</tr>
<tr>
<td>SA (n=20)</td>
<td>10</td>
<td>34</td>
<td>36.5</td>
<td>9.1</td>
<td>90</td>
</tr>
<tr>
<td>AT (n=17)</td>
<td>9</td>
<td>45</td>
<td>23.4</td>
<td>10.7</td>
<td>76</td>
</tr>
<tr>
<td>MT (n=29)</td>
<td>10</td>
<td>40</td>
<td>23.4</td>
<td>10.0</td>
<td>65.5</td>
</tr>
<tr>
<td>Total (n=79)</td>
<td>0</td>
<td>45</td>
<td>22.8</td>
<td>9.8</td>
<td>70.9</td>
</tr>
</tbody>
</table>

*MVA= Motor Vehicle Accident Survivors, SA= Sexual Assault Survivors, AT= Alternate Trauma Survivors, MT= Multiple Trauma Survivors

Before the data was analyzed, a process was implemented to identify potential outliers. Univariate outliers were screened for by standardizing the raw scores, and z scores that were greater than three standard deviations from the mean (z >3.00 or z < -3.00) were considered as outliers. One outlier was found in the DES measure group (z=3.6) and it was determined to be a true outlier. As a result, analyses which utilized the DES measure group were reported as two sets of data, one with and one without the outlier. Multivariate outliers, which consist of unusual combinations of scores on two or more variables simultaneously, were also screened. A Mahalanobis distance was run and the variables with the highest Mahalanobis distance were evaluated as potential outliers using a chi square (p<.001). No outliers were found with a Mahalanobis distance greater than df=3 is 16.266, χ2 at p < .001.

Research Question 1: Does peritraumatic dissociation result in more severe PTSD symptoms?

It was hypothesized that scores indicating greater levels of peritraumatic dissociation would be positively correlated with scores indicating greater levels of PTSD. To determine if a significant relationship existed between the trauma measures, a Pearson Product Moment
Correlation (PPMC) was computed between the PCL-S and PDEQ-SRV. Using the Bonferroni approach to control for Type I error, a $p$ value of less than .025 ($0.05/2 = 0.025$) was required for significance. There was a significant positive relationship found between the PCL-S and the PDEQ-SRV, $r(77) = .34$, $p =.003$, with a 95% confidence interval between .12 and .55.

It was further hypothesized that individuals whose scores indicated clinically significant peritraumatic dissociation would obtain significantly higher mean PTSD symptom severity scores than those individuals whose scores did not indicate clinically significant peritraumatic dissociation. An independent-samples t-test was conducted to compare PCL-S scores in clinically significant and non-clinically significant peritraumatic dissociation score groups. The PDEQ-SVR group that reached clinical threshold produced PCL-S mean of 46.75 (SD= 13.2) and the PDEQ-SVR group that did not reach clinical threshold produced a PCL-S mean of 35.77(SD=16.05). The test was significant, $t(77)= 3.12$, $p=.002$, this means there was a statistically significant difference was found, with individuals obtaining clinically significant PDEQ-SVR scores having statistically significantly higher PCL-S scores than individuals PCL-S scores who did not obtain clinically significant PDEQ-SVR scores. The 95% confidence interval for the difference in means was ranging from 3.97 and 17.99. The eta-squared ($\eta^2$) index indicated that 11% of the variance in the PCL-S score was accounted for by whether a participant scored in the clinical threshold of the PDEQ-SVR, indicating a medium to large effect.

**Research Question 2: Are current symptoms of dissociation associated with more severe PTSD symptoms?**

It was hypothesized that scores indicating greater levels of dissociation would be positively correlated with scores indicating greater levels of PTSD. To determine if a significant relationship existed between the trauma measures, PPMCs were computed between the PCL-S
and DES. As stated previously, one univariate outlier was found in the DES measure group (z=3.6), so both sets of data with and without the outlier will be presented. Using the Bonferroni approach to control for Type I error a p value of less than .025 (.05/2 = .025) was required for significance. A significant positive relationship was found between the PCL-S and the DES when the outlier was included, r(77) = .63, p = .00, with a 95% confidence interval between .45 and .8. When the outlier was removed, a significant positive relationship remained between the PCL-S and the DES, r(76)=.6, p=.00, with a 95% confidence interval between .42 and .79.

It was further hypothesized that individuals whose scores indicated clinically significant dissociation symptoms would obtain significantly higher mean PTSD symptom severity scores than those individuals whose scores did not indicate clinically significant dissociation symptoms. However, due to the low number of clinically significant DES scores (n=8) in comparison to the non-clinically significant DES scores (n=71), statistical significance between the two means could not be determined.

Research Question 3: Do trauma types vary in peritraumatic dissociation, current dissociative symptoms, and PTSD symptom severity?

A one-way multivariate analysis of variance (MANOVA) was conducted to evaluate the three measures of trauma symptom presentation (PCL-S, DES, PDEQ-SRV) in relation to the different trauma groups (MVA, SA, AT, MT). The MANOVA results indicated a significant multivariate main effect for trauma symptom presentation both with the DES outlier included, Wilks’ Λ = .76, F( 9, 178) = 2.4, p=.015, partial η² = .09, and with the outlier removed, Wilks’ Λ = .74, F( 9, 175) = 2.5, p=.01, partial η² = .09. Given the significance of the overall test, the univariate main effects were examined. To control for Type I error across the three univariate tests, alpha was set at .0167 (.05/3) for each. Significant univariate main effects for trauma
symptom presentation were only obtained for the PCL-S, F(3, 75) = 5.51, p=.002, partial η² = .18. This was also found when the outlier was removed, PCL-S, F(3,74)=6.2, p=.001, partial η²= .201. No significant univariate main effect for trauma symptom presentation was found for the DES, either with the outlier included, F(3, 75) = 1.53, p = .213 (p > .0167), partial η² = .058, or with the outlier removed, F(3, 74) =2.09, p=.109 (p>.0167), partial η² = .078. Similarly, no significant univariate main effect for trauma symptom presentation was found for the PDEQ-SRV, either with the outlier included, F(3,75)= 2.16, p=.099 (p>.0167), partial η² = .08, or with the outlier removed, F(3,74)=2.26, p=.088 (p>.0167), η² = .08. The means and standard deviations with the outlier present for each dependent variable as a function of the factor are presented in Table 6.

Table 6: Mean and Standard Deviations by Trauma Symptom Measures (n=79)

<table>
<thead>
<tr>
<th></th>
<th>MVA (N=13)*</th>
<th>SA (N=20)*</th>
<th>AT (N=17)*</th>
<th>MT (N=29)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>30.9a</td>
<td>36.5b</td>
<td>37.5</td>
<td>47c</td>
</tr>
<tr>
<td>SD</td>
<td>10.7</td>
<td>9.1</td>
<td>13.5</td>
<td>15</td>
</tr>
<tr>
<td>PCL-S</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DES</td>
<td>8.2</td>
<td>12.5</td>
<td>13.5</td>
<td>16.1</td>
</tr>
<tr>
<td>PDEQ-SRV</td>
<td>16.8</td>
<td>25.2</td>
<td>23.4</td>
<td>23.4</td>
</tr>
</tbody>
</table>

α =MVA significant lower score than MT at p<.016, b=SA significant lower score than MT at p<.016, c=MT significant higher score than MVA and SA at p<.016
*MVA= Motor Vehicle Accident Survivors, SA= Sexual Assault Survivors, AT= Alternate Trauma Survivors, MT= Multiple Trauma Survivors

Further examination of the differences between trauma type groups on the PCL-S indicated that the MVA trauma group on average had significantly lower scores (M = 30.92, SD = 10.7) than the MT group (M = 47, SD = 15), with a 95% confidence interval for the difference in means ranging from -24.7 to -7.4. The PCL-S also indicated that the SA trauma group on average had significantly lower scores (M = 36.5, SD = 9.1) than the MT group (M = 47, SD = 15), with a 95% confidence interval for the difference in means ranging from -18 to -2.9. No significance differences were found across the remaining trauma groups.
A second analysis of the data was completed with the outlier removed from the data set. The means and standard deviations with the outlier removed for each dependent variable as a function of the factor are presented in Table 7.

Table 7: Mean and Standard Deviations by Trauma Symptom Measures Outlier Removed (n=78)

<table>
<thead>
<tr>
<th>Measure</th>
<th>MVA (N=13)*</th>
<th>SA (N=20)*</th>
<th>AT (N=16)*</th>
<th>MT (N=29)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCLP</td>
<td>30.9a</td>
<td>36.5b</td>
<td>35.6c</td>
<td>47d</td>
</tr>
<tr>
<td>SD</td>
<td>10.7</td>
<td>9.1</td>
<td>13.3</td>
<td>15</td>
</tr>
<tr>
<td>DES</td>
<td>8.2</td>
<td>12.5</td>
<td>11</td>
<td>16.1</td>
</tr>
<tr>
<td>SD</td>
<td>6.9</td>
<td>10.1</td>
<td>8.8</td>
<td>12.1</td>
</tr>
<tr>
<td>PDEQ-SRV</td>
<td>16.8e</td>
<td>25.2f</td>
<td>22.1</td>
<td>23.4</td>
</tr>
<tr>
<td></td>
<td>9.9</td>
<td>7.4</td>
<td>9.6</td>
<td>10</td>
</tr>
</tbody>
</table>

a = MVA significant lower score than MT at p < .016, b = SA significant lower score than MT at p < .016, c = AT significant higher score than MT at p < .016, d = MT significant higher score than MVA, SA, AT at p < .016, e = MVA significant lower score than SA at p < .016, f = SA significant higher score than MVA at p < .016

*MVA = Motor Vehicle Accident Survivors, SA = Sexual Assault Survivors, AT = Alternate Trauma Survivors, MT = Multiple Trauma Survivors

When the outlier was removed, results indicated that the MVA group on average had significantly lower scores (M = 30.9, SD = 10.7) than the MT group (M = 47, SD = 15), with a 95% confidence interval for the difference in means ranging from -24.5 to -7.6. The SA trauma group on average had significantly lower scores (M = 36.5, SD = 9.1) than the MT group (M = 47, SD = 15), with a 95% confidence interval for the difference in means ranging from -17.8 to -3.1. The AT group on average also had significantly lower scores (M = 35.6, SD = 13.3) than the MT group (M = 47, SD = 15), with a 95% confidence interval for the difference in means ranging from -19.2 to -3.5. Significant differences were not found across any of the trauma groups within the DES measure. A significant difference within the PDEQ-SRV measure was found with MVA trauma group on average scoring lower (M = 16.8, SD = 9.9) than the SA trauma group (M = 25.2, SD = 7.4), with a 95% confidence interval for the difference in means ranging from -15 to -1.7. No significance differences were found across the remaining trauma groups.
Research Question 4: Do the relationships observed between peritraumatic dissociation, current symptoms of dissociation, and PTSD symptom severity vary by type of trauma experienced?

It was hypothesized that, when broken into trauma type groups, some correlational relationships would remain significant while others would not. To determine if a significant relationship existed between the trauma groups, PPMCs were computed between the PCL-S, DES, and PDEQ-SVR for each trauma group. As stated previously, one univariate outlier was found in the DES measure group (z=3.6) and both sets of data with and without the outlier will be presented. Using the Bonferroni approach to control for Type I error across the three correlations a p value equal to or less than .016 (.05/3 = .016) was required for significance.

For the MVA group, a significant positive relationship was found between the PCL-S and the DES, r(10) = .78, p =.002, with a 95% confidence interval between .37 and 1.2. No significant relationships were found between the PCL-S and PDEQ-SVR, r(10) = .27, p = .38, or the DES and PDEQ-SVR, r(10) = .58, p = .04.

The results of the correlational analyses for the SA group yielded no statistically significant results for the PCL-S and DES, r(20) = .51, p =.022, for the PCL-S and PDEQ-SRV, r(20) = -.04, p = .87, or for the DES and PDEQ-SRV, r(20) = -.044, p = .85.

For the AT group a significant positive relationship was found between the PCL-S and the DES both when the outlier was included, r(17) = .75, p = .001, with a 95% confidence interval between .37 and 1.1, and when the outlier was removed, r(16)=.65, p = .007, with a 95% confidence interval between .15 and .78. A significant positive relationship was also found between the DES and the PDEQ-SVR when the outlier was included, r(17)=.65, p = .005, with a 95% confidence interval between .24 and 1.1. With the outlier removed, however, this
relationship was no longer significant, \( r(16) = .49, p = .05 \). No significant relationship was found between the PCL-S and the PDEQ-SVR, either with the outlier included, \( r(17) = .56, p = .019 \), or without the outlier, \( r(16) = .41, p = .11 \).

For the MT group, a significant positive relationship was found between the PCL-S and the DES, \( r(29) = .52, p = .003 \), with a 95% confidence interval between .19 and .86. No significant relationships were found between the PCL-S and the PDEQ-SVR, \( r(29) = .30, p = .11 \), or between the DES and the PDEQ-SVR, \( r(29) = .34, p = .08 \).

**Discussion**

This study examined the relationships between PTSD symptomatology, dissociation experiences/symptoms, and the effect the type of trauma an individual experiences has on these variables. With limited research conducted on the interactions of these different variables, it was unclear what would be found, so most research questions were exploratory in nature. Results indicated that the mean score of each trauma group reached the clinical threshold for a potential diagnosis of PTSD. This was unexpected given that this was a non-clinical sample from the population, who may not have previously been diagnosed with PTSD or acute stress disorder. However the trend across the different trauma groups’ report of PTSD symptoms was consistent with the majority of previous research reviewed, with the MT group scoring the highest and MVA group scoring the lowest. These results however should be interpreted with caution as the number of participants across groups was not evenly distributed, and this effect may have been due to a larger sample size in the MT group.

None of the trauma groups reached a mean clinical score on the dissociation symptoms measure, indicating that participants’ symptomatology was less likely to be expressed in dissociative symptoms. The MT group also scored the highest on the dissociative symptoms
measure, with the MVA group also scoring the lowest. Consistent with previous research, individuals who have experienced multiple traumas tend to experience higher levels of symptomatology overall (Hagenaars, Fisch, & Minnen, 2011).

Finally, each trauma group scored at the clinical threshold for the peritraumatic dissociation scale, with the SA group scoring the highest and the MVA group scoring the lowest. This is consistent with research on SA survivors in which dissociation at the time of the trauma occurs more frequently when compared to other groups (DePrince, Chu, & Pineda, 2011; Kelley et al., 2009; Norris, Foster, & Weisshaar, 2002; Wechsler-Zimring & Kearney, 2011.). This also coincides with the betrayal trauma theory proposed by Goldsmith, Freyd, and DePrince (2012) in which dissociation is viewed as a form of coping resulting from psychological trauma involving betrayal of a primary care giver or intimate partner. Previous researchers have hypothesized that sexual assault survivors could be experiencing higher symptom levels due to the effect the type of trauma has on their interpersonal relationships, resulting in an increased level of stress (Kelley et al., 2009).

The MVA group produced the lowest scores across all three assessment measures, which may indicate that the level of symptomatology experienced by this group is less than that of other types of trauma groups. This is consistent with Kelley et al. (2009), in which MVA survivors reported statistically significantly lower levels of PTSD symptomatology in comparison to other groups.

A series of four research questions were addressed in this study. The first question (does peritraumatic dissociation result in more severe PTSD symptoms) addressed the relationship between PTSD symptomatology and peritraumatic dissociation. There was a significant positive correlation found between the PCL-S and the PDEQ-SRV, meaning as scores on the PCL-S
increased, so did scores on the PDEQ-SRV. In addition, it was further hypothesized that participants whose scores reached the clinical threshold for peritraumatic dissociation would obtain significantly higher PTSD symptom severity scores than those participants whose scores did not reach a clinical threshold for peritraumatic dissociation. This hypothesis was also supported, as there was a statistically significant difference between the PCL-S groups with scores above versus those below the clinical cut off score for the PDEQ-SVR. Therefore, as individuals endorsed clinically significant levels of dissociation at the time of the trauma they also reported experiencing clinically significant higher PTSD symptomatology in comparison to individuals who did not report high levels of dissociation at the time of the trauma. This correlation is consistent with theories that there is an interaction between PTSD and peritraumatic dissociation as described in the co-morbidity model (Simeon, 2007).

The second research question (are current symptoms of dissociation associated with more severe PTSD symptoms) examined the relationship between current dissociation symptoms and PTSD symptoms. There was a significant positive correlation found between the PCL-S and the DES, indicating that as scores on the PCL-S increased, so too did scores on the DES. To further examine this relationship, it was hypothesized that individuals whose scores indicated clinically significant dissociation symptoms would obtain significantly higher mean PTSD symptom severity scores than those individuals whose scores did not indicate clinically significant dissociation symptoms. Unfortunately, due to a low number of clinically significant DES scores, a comparison could not be made. The extremely low endorsement of current dissociation symptoms across all trauma groups may indicate, in a non-clinical sample, dissociation symptoms are not frequently experienced. However, even with such a low level of endorsement, a significant positive correlation could still be determined, supporting Milot et al. (2013) in
conceptualizing dissociation and PTSD as being separate but related constructs. Caution should also be utilized due to the length of time (e.g., 10 years or greater since the trauma occurred) which may have lowered dissociation symptoms reported.  

The third research question (do trauma types vary in peritraumatic dissociation, current dissociative symptoms, and PTSD symptom severity) evaluated the interaction between each trauma group across each measure. The PTSD measure yielded statically significant differences between the trauma groups both with and without the outlier. The PDEQ-SVR also yielded statistical significant difference between two trauma groups, but only when the outlier was removed. Participants in the MT group on average had statistically significantly higher scores in comparison to the MVA group and the SA group on the PCL-S measure. When the outlier was removed, the AT group also had statistically significantly lower scores in comparison to the MT group. This was expected, as stated previously, in that researchers have found that individuals who experience multiple traumas report experiencing higher levels of PTSD symptomatology in comparison to other groups (Hagenaars, Fisch, & Minnen, 2011; Hetzel-Riggin & Roby, 2012).  

Surprisingly, the SA group did not yield statically significantly higher scores when compared to the MVA or AT groups. Multiple studies conducted on clinical samples have found that SA survivors tend to have higher levels of PTSD symptomatology in comparison to other groups (Breslau, Troost, Bohnert, & Lou, 2013; Kelley et al., 2009; Kirz et al., 2001; Ullman & Filipas, 2001). This study utilized a non-clinical sample which may indicate that SA individuals in this group are not experiencing as high levels of PTSD symptomatology as clinical samples. However, as stated previously, the limited diversity of our sample size and the unknown variable of trauma severity may have also affected this outcome.
The DES measures did not yield a statistically significant difference across any of the trauma groups, both with and without the outlier computed as part of the sample. While there were differences between the means as discussed previously, none of these differences were statistically significant. This was unexpected, and implies that across trauma groups there was not a significant difference for current dissociation symptoms. Perhaps, non-clinical trauma survivors do not experience dissociation symptoms at the same frequency as individuals that are a part of a clinical sample. As stated previously this effect may have been caused by the great length of time since the trauma occurred.

Only one statistically significant difference was found for the PDEQ-SVR when the outlier was removed. The SA survivors group reported statistically significant higher scores in comparison to the MVA group. This was expected, given that previous researchers had examined peritraumatic dissociation and current dissociation for individual SA trauma groups and had found differences between trauma groups (Carlson, Armstrong, Loewenstein, & Roth, 1998; Hagenaars, Fisch, & Minnen, 2011; Murray, Ehlers, & Mayou, 2002). However, no additional statistically significant differences were found between other trauma groups. Hetzel-Riggin and Roby (2013) utilized a non-clinical sample and found multiple trauma survivors to report higher levels of PTSD symptomatology and peritraumatic dissociation in comparison to single trauma survivors. However, this was with a large sample of over 1,500 participants; the significantly smaller sample size this study used may explain why a limited effect was found.

The final research question, (do the relationships observed between peritraumatic dissociation, current symptoms of dissociation, and PTSD symptom severity vary by type of trauma experienced) reviewed the interactions of the measures within each trauma group utilizing correlations. It was hypothesized that, when broken into trauma type groups, some
correlations would remain significant while others would not. Positive correlations were found between the PCL-S and DES across the MVA, AT, and MT groups. As scores on the PCL-S increased so did scores on the DES across these three trauma groups. This could mean that MVA, AT, and MT survivors who experience higher levels of PTSD symptomatology, could also experience higher levels of dissociation symptoms.

The results of the correlational analyses for the SA group yielded no statistically significant results. This is surprising that no relationship exists between increased scores on the PCL-S and DES. However, these findings are consistent with Mulder, Beautrais, Joyce, and Fergusson (1998), in which no significant relationship was found between SA and higher scores on the DES. These authors also utilized a non-clinical sample and hypothesized that SA survivors who receive treatment may experience higher levels of dissociation. Individuals who enter into treatment may experience higher levels of distress resulting in higher levels of dissociative symptoms, or as an individual moves through treatment they develop an increase awareness of the dissociative symptoms they are experiencing which may go unnoticed by individuals who have not entered into treatment.

A significant relationship was not found between the PCL-S and the PDEQ-SVR, with or without the outlier, across trauma groups. This is surprising given that a positive correlation was seen between the PCL-S and PDEQ-SVR when the total means were compared. This could be due to the PDEQ-SVR measuring symptoms experienced at the time of the event and the PCL-S measuring current symptomatology. The majority of individuals in this study experienced their trauma over 10 years ago which may have affected their ability to endorse dissociative symptoms at the time of the event. However, if this were to have been an issue we may not have then seen clinically significant mean scores on the PDEQ-SVR reported by all trauma groups. A
conclusion could be made based on these results that, PTSD symptoms and dissociation symptoms have a stronger correlation than PTSD symptoms and peritraumatic dissociation, when examining each individual trauma group. However, a more likely explanation is that the small sample size may have prevented statistical significance from being achieved.

Since no significance was found between the PCL-S and PDEQ-SVR across each trauma group trends will be discussed. The AT group showed the highest correlation in comparison to other trauma groups, which is consistent with previous studies which had found peritraumatic dissociation to predict PTSD symptomatology (Kangas, Henry, & Bryant, 2005; Van Loey, Mas, Faber, & Taal, 2003). Both the MVA and MT group had a consistent overall correlation in the expected positive direction showing an association between PTSD and peritraumatic dissociation. As stated previously, researchers have found the SA survivors to experience higher levels of peritraumatic dissociation and PTSD symptomatology in comparison to other groups, so it is perplexing that we would not see this relationship among the measures (Carlson, Armstrong, Loewenstein, & Roth, 1998; Ozer, Best, Lipsey, & Weiss, 2008). One explanation could be the time in which the trauma occurred. DePrince, Chu, and Pineda (2011) found that SA survivors who had more recently experienced the trauma showed high scores on both the PTSD and dissociation scale. The majority of individuals in this sample had experienced their trauma over 10 years ago. Perhaps with individuals who had more recently experienced their trauma a relationship between the measures would have been seen, with individuals endorsing higher levels of PTSD symptomatology.

To summarize, significant positive correlations were found between the measures of PTSD symptoms and dissociation symptoms, and between PTSD symptoms and peritraumatic dissociation. When broken into groups based on type of trauma, correlations remained
significant between PTSD symptoms and current dissociative symptoms for the MVA, AT, and MT groups, but not the SA group. Surprisingly, no correlations remained significant between PTSD symptoms and peritraumatic dissociation when the sample was broken into trauma type groups.

When each trauma group was compared, only MT survivors had significantly higher scores on the PTSD measure in comparison to the MVA, SA and AT groups. While it was expected that the MT group would endorse higher symptomatology, it was surprising to see that the SA survivors did not show additional significantly higher scores across the trauma groups. No significant variability was found across the trauma groups on the current dissociation symptoms measure. Only the SA group showed statistically significant higher scores on the PDEQ-SVR measure in comparison to the MVA group. However, mean differences were seen across the trauma groups with the MVA group having the lowest total mean across all three measures. The MT group had the highest mean score for both PTSD symptoms and dissociation symptoms, and the SA survivors had the highest mean score for peritraumatic dissociation. While trends were expected caution should be used when interpreting these results as trauma severity within or across groups was not controlled.

Perhaps, individuals who experienced traumas that are perceived by others to occur more commonly (e.g., a car accident) are able to more easily seek out social support. In comparison, individuals who experience traumas that are perceived to be less common or are more challenging to discuss with others (e.g., sexual assault) may have a difficult time seeking out support. Social support and the impact this has for trauma survivors is beginning to be explored in the research. A meta-analysis conducted by Brewin, Andrews, and Valentine (2000) found that pre-trauma factors such as psychiatric history, reported childhood abuse, and family
psychiatric history contributed to the development of PTSD. Brewin, Andrews, and Valentine (2000) stated that factors occurring during or after the traumatic event, such as trauma severity, additional life stress, and lack of social support, had a stronger effect on the development of PTSD than pre-trauma factors.

Limitations

There were many limitations to this study. Recruitment was challenging due to attempting to target a very specific group of participants (non-clinical trauma survivors, who had not been diagnosed with PTSD, acute stress disorder, or a dissociation disorder). In addition, we were unable to recruit enough participants for each proposed trauma group, resulting in reclassifying some participants and reducing the number of trauma groups examined from six to four. By reclassifying some of the trauma participants, confounding variables were formed which may have affected the results when comparing the trauma groups. In addition, the number of participants for each group was not consistent which may have affected the outcomes especially when comparing between each trauma group. While we were able to achieve the sample size calculated, it was still small in comparison to previous studies, potentially contributing to the limited statistical differences we found between trauma groups.

There was a lack of diversity in the sample that was collected. Information such as the effect of demographics (e.g., age, race, gender) and amount of time since trauma could not be utilized as variables. Caution should be utilized in generalizing the results of this study to the general non-clinical population, as the majority of the participants were between the ages of 18-29, Caucasian, and female, which may have had an effect on the data collected. Almost half of the participants in this sample had experienced their trauma over 10 years ago. There may have been an increase in significant results if individuals had been surveyed closer to the time of the
A major limitation of this study was that trauma severity was not evaluated or measured. Individuals were classified based on the type of trauma they experienced; however, it is unknown how much variability there was within each trauma group, or across the trauma groups. Severity of trauma may have been a factor that contributed to the differences observed, or not observed, among trauma types rather than differences in the type of trauma experienced. In addition, it is unknown if we captured a true non-clinical sample since individuals were only asked if they had been diagnosed with a disorder, not if they had ever received mental health treatment/services as a result of their trauma.

The method in which the data was collected, self-report online survey, may have also affected the outcome of the study. Since there was no in-person interview, it is unknown the effect a self-report online survey measure may have had on participants’ willingness to over- or under-report symptoms on each measure. Caution should be used when comparing this study to other clinical studies in which other methods of data collection were utilized. Traumatic events are unplanned, and individuals are in distress after the event has occurred, thus the majority of the research conducted on these populations is, of necessity, done retrospectively. This makes it difficult to accurately detect the amount of symptoms experienced at the time of the trauma and it is unknown how accurately this information is captured.

Directions for Future Research

Based on the findings of this study and review of the literature, future research is needed to address the relationship between dissociation and PTSD symptoms for trauma survivors. This study found individuals who experienced multiple traumas to report experiencing greater PTSD symptomatology in comparison to motor vehicle accident, sexual assault survivors, and alternate
trauma survivors. However, there were no statistically significant findings across groups in relation to an individual’s experience of dissociation symptoms. This is inconsistent with some previous studies that had found multiple trauma survivors to have higher levels of dissociation in comparison to other trauma groups (Breslau, Troost, Bohnert, & Luo, 2013; Carlson, Armstrong, Loewenstein, & Roth, 1998; Hagenaars, Fisch, & van Minnen, 2011; Hetzel-Riggin & Roby, 2013). However, correlations between dissociation and PTSD were moderate, indicating that there may be some overlap in symptom presentation. Consistent with research findings conducted by Mulder, Beautrais, Joyce, and Fergusson (1998), non-clinical samples of sexual assault survivors did not report higher levels of dissociation symptoms in comparison to other groups, but did report higher levels of peritraumatic dissociation in comparison to other trauma types. In addition, sexual assault survivors reported higher levels of peritraumatic dissociation in comparison to motor vehicle accident survivors. Future studies with a similar non-clinical population could more accurately assess the relationship between PTSD and dissociation by using a larger sample size.

Hetzel-Riggin and Roby (2103) had over 1,500 non-clinical participants and found female multiple trauma survivors to report higher levels of PTSD symptomatology and peritraumatic dissociation in comparison to single trauma survivors. Overall, more studies need to continue to examine how the type of trauma one experienced affects symptomatology for both PTSD and dissociation for both clinical and non-clinical samples. Future research could compare PTSD non-dissociation samples to PTSD with dissociation samples, to explore similarities and differences across different factors presented. This is especially important given the recent diagnostic changes in the DSM-5 (American Psychiatric Association, 2013), in which dissociation can be diagnosed as a subtype of PTSD.
Diversity factors such as age, ethnicity, and gender may impact the development of PTSD and/or dissociation symptoms. Future studies could focus more efforts on recruiting non-clinical trauma survivors and additional trauma groups (e.g., refugee survivors) that are neglected in the literature. A development of new recruitment methods to target these individuals would be especially useful. Methods such as seeking approval from rental car agencies where individuals may have recently experienced an automobile accident, or receiving permission from local hospitals to assess individuals receiving medical care due to a recent traumatic experience are examples of methods that may better capture a diverse sample. These methods would also aid in collecting data from different trauma groups by targeting individuals who have experienced trauma but may not have sought out services, such as passing out surveys at Veterans of Foreign War (VFW) lodges.

As stated previously, the level of trauma severity was not measured or assessed in this study. It is unknown if the severity of the trauma experienced had an effect on the development of dissociation and PTSD symptoms, especially across different trauma groups. Carlson, Armstrong, Loewenstein, and Roth (1998) found that individuals who reported “extreme abuse” had higher levels of PTSD symptoms in comparison to “less extreme abuse.” Future studies could assess for trauma severity and the relationship this may have to the development of PTSD and dissociation symptoms.

Finally, new measures could be developed to address the changes made to the PTSD diagnostic criteria in DSM-5 (APA, 2013), specifically screening for dissociation. Both dissociation measures (DES and PDEQ-SVR) have not been updated in over a decade and it is unknown if individuals’ experiences of dissociation have changed during that time. Future research could continue to better quantify the experience of PTSD and dissociation.
Implications and Conclusion

The implications of this study seem to suggest that there is some variability in the experience of PTSD symptoms across different trauma groups, particularly for individuals who experience multiple traumas. While no statistically significant differences could be found between trauma groups and the experience of dissociation symptoms, variation across mean scores were seen. Correlations were found between PTSD symptoms and peritraumatic dissociation and dissociation symptoms. It is unknown what other variables may have contributed to this correlation, but clearly future investigation into the relationship between PTSD and dissociation is warranted.

The theory behind the relationship between PTSD and dissociation could continue to be explored based on trauma type instead of an overarching theory. We are beginning to see this change in recent conceptualization theories, such as in betrayal trauma theory which focuses on individuals who experience interpersonal trauma in comparison to non-interpersonal trauma. Additional theories, such as the co-morbidity model (describing dissociation and PTSD as two separate disorders but acknowledging the overlapping symptomatology), could allow for more flexibility in the conceptualization of PTSD (Simeon, 2007).

Assessing for differences and similarities across trauma types in their presentation of PTSD symptomatology could aid clinicians in how best to implement treatment practices. Some researchers claim that different treatment strategies are not needed based on the type of trauma experienced, but admit that if dissociation is a main symptom, a modified treatment focus would be necessary (Hagenaars et al., 2011). The International Society for the Study of Trauma and Dissociation updated their guidelines for the treatment of individuals with dissociative disorders in 2011. These guidelines provide an over view of treatment goals and describe a phase-oriented
treatment model which has shown promising results at reducing dissociation symptoms. The phase-oriented treatment model consists of three primary stages or phases; establishing safety/stabilization/symptom reduction, confronting and integrating traumatic memories, and identity integration and rehabilitation (International Society for the Study of Trauma and Dissociation, 2011). Specific Cognitive-Behavioral Therapy (CBT) interventions, (e.g., grounding or relaxation exercises, suggesting breaks during session, and aiding the client in gaining control over their cognitive distortions of the self and the world) have been shown to be effective in the treatment of dissociation (International Society for the Study of Trauma and Dissociation, 2011).

CBT treatments that are evidence based, such as exposure therapy, are the current gold standard of treatment for PTSD, but they do not directly address dissociative symptoms (Keane, Marx, Sloan, & DePrince, 2010). Treatment manuals such as Seeking Safety (Najavits, 2002) are beginning to treat complex symptoms of PTSD such as dissociation, and it would be valuable for clinicians to understand when to utilize these approaches compared to standard CBT models.

A standard treatment approach for individuals experiencing dissociative symptoms would be to process the trauma memory and begin to work towards a self-interpersonal reintegration (Ford, 2013). A recent study conducted by Resick et al. (2012) found that, among trauma survivors who endorsed higher levels of dissociation, cognitive processing therapy (a combination of cognitive skills and written trauma accounts) was more effective at reducing dissociative symptoms than cognitive therapy alone.

A study conducted by Brand et al. (2009) compared the responses of over 200 therapists self-report and patients with DID or chronic PTSD self-report on the effectiveness of treatment. Patients were categorized into the following treatment stages: first stage 2-3 years, second stage
4-5 years, third stage 6 years, fourth stage 7 years, and fifth stage 8-9 years. The authors found that consistently patents reported a reduction in experiencing dissociation symptoms, PTSD symptoms, and overall level of distress the longer an individual had been engaging in treatment. Therapists reported that among patents in the first stage of treatment (2-3 years) higher rates of self-harming behaviors, hospitalizations, and mental health symptoms were seen in comparison to individuals in the fifth stage of treatment (8-9 years). This sample consisted of community treatment providers in which a variety of therapeutic orientations were utilized (e.g., psychodynamic, CBT, humanistic) with no statistical differences found across treatment modalities (Brand et al., 2009).

A review of the dissociative disorders treatment literature was conducted by Brand, Classen, McNary, and Zaveri (2009). The authors found consistently with the work of Brand et al. (2009) that individuals with dissociative disorders engaged in treatment had a reduction in depression, PTSD, distress, and suicidality. This reduction was seen regardless of the therapeutic intervention utilized. A pilot study conduct by Goldstein et al. (2004) implemented a 12 week trial of a CBT treatment manual for patients experiencing dissociative seizures. Results yielded a statistically significant differences between pre and post test scores on dissociative and psychosocial measures. A six month follow up was conducted on the participants and in addition to improvements in dissociative and psychosocial functioning, individuals also reported an improvement in employment status. Whether this was due to a reduction in symptoms or the development of new coping skills was not evaluated by the authors. Continued exploration into the benefits of CBT interventions for individuals with dissociative symptoms may prove to be beneficial.

With recent changes to the diagnostic criteria for PTSD, how clinicians conceptualize this
disorder has started to change due to the differences in diagnostic impressions given by clients. Consistent with previous research, this study showed that not only is there some variation across trauma types, but the number of traumas an individual experiences has an effect on symptom endorsement. Trauma, whether experienced by an individual or vicariously through someone else, can have permanent life altering effects. While there may never be one answer to the multitude of complex questions that are associated with the development of symptoms experienced as a result of trauma, we can only hope that, through our efforts of attempting to answer those questions, relief can be provided to those who struggle daily with the impact trauma has on their lives.
References


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Appendixes

Appendix A

Please fill out the following information to the best of your ability. In the section that discusses traumatic event(s) experienced please

**Demographic Information**

Age: ___

Gender: ___

Ethnicity: ______________

**Traumatic Event(s) Experienced**

Please place an X next to each traumatic event you have experienced at any point in your life. A traumatic event is one in which you felt that your life or the life of someone you were with was endanger, or you witnessed a traumatic event of which you felt the other person’s life was endanger:

___ Motor Vehicle Accident
___ Military/Combat Related Trauma
___ Sexual Assault
___ Nonsexual Assault
___ Natural Disaster
___ Diagnosed With a Major Medical Illness/Disorder
___ Unexpected Loss of a Loved One
___ Terrorist Attack
___ Other (please indicate)____________________

If you listed more than one traumatic event, if possible, please list which event you feel had the greatest impact on you.
Appendix B

PTSD Check List – (PCL-S)
Name: ________________________________

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, put an “X” in the box to indicate how much you have been bothered by that problem in the past month.

The event you experienced was ________________________ on _____________(date)

No. Response: Not at all (1) A little bit (2) Moderately (3) Quite a bit (4) Extremely (5)

1. Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?
2. Repeated, disturbing dreams of a stressful experience from the past?
3. Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?
4. Feeling very upset when something reminded you of a stressful experience from the past?
5. Having physical reactions (e.g., heart pounding, trouble breathing, or sweating) when something reminded you of a stressful experience from the past?
6. Avoid thinking about or talking about a stressful experience from the past or avoid having feelings related to it?
7. Avoid activities or situations because they remind you of a stressful experience from the past?
8. Trouble remembering important parts of a stressful experience from the past?
9. Loss of interest in things that you used to enjoy?
10. Feeling distant or cut off from other people?
11. Feeling emotionally numb or being unable to have loving feelings for those close to you?
12. Feeling as if your future will somehow be cut short?
13. Trouble falling or staying asleep?
14. Feeling irritable or having angry outbursts?
15. Having difficulty concentrating?
16. Being “super alert” or watchful on guard?
17. Feeling jumpy or easily startled?
Appendix C

Name:_________________________________________ Student
ID#:__________________
Telephone: _______________ Age: __________ Years Sex: ___Female ___Male

PERSONAL EXPERIENCES

This questionnaire consists of 28 questions about experiences that you may have in your daily life. We are interested in how often you have these experiences. It is important, however, that your answers show how often these experiences happen to you when you are not under the influence of alcohol or drugs.

To answer the questions, please determine to what degree the experience described in the question applies to you and indicate the percentage of the time you have the experience:

(Never) 0%----10-----20----30----40----50----60----70----80----90----100% (Always)

_____01. Some people have the experience of driving or riding in a car or bus or subway and suddenly realizing that they don’t remember. Indicate what has happened during all or part of the trip. Indicate what percentage of the time this happens to you.

_____02. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear part or all of what was said. Indicate what percentage of the time this happens to you.

_____03. Some people have the experience of finding themselves in a place and having no idea how they got there. Indicate what percentage of the time this happens to you.

_____04. Some people have the experience of finding themselves dressed in clothes that they don’t remember buying. Indicate what percentage of the time this happens to you.

_____05. Some people have the experience of finding new things among their belongings that they do not remember buying. Indicate what percentage of the time this happens to you.

_____06. Some people sometimes find that they are approached by people that they do not know who call them by another name or insist that they have met them before. Indicate what percentage of the time this happens to you.

_____07. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they were looking at another person. Indicate what percentage of the time this happens to you.

_____08. Some people are told that they sometimes do not recognize friends or family members. Indicate what percentage of the time this happens to you.

_____09. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). Indicate what percentage of the time this happens to you.
10. Some people have the experience of being accused of lying when they do not think that they have lied. Indicate what percentage of the time this happens to you.

11. Some people have the experience of looking in a mirror and not recognizing themselves. Indicate what percentage of the time this happens to you.

12. Some people have the experience of feeling that other people, objects, and the world around them are not real. Indicate what percentage of the time this happens to you.

13. Some people sometimes have the experience of feeling that their body does not seem to belong to them. Indicate what percentage of the time this happens to you.

14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving that event. Indicate what percentage of the time this happens to you.

15. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them. Indicate what percentage of the time this happens to you.

16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. Indicate what percentage of the time this happens to you.

17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them. Indicate what percentage of the time this happens to you.

18. Some people sometimes find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. Indicate what percentage of the time this happens to you.

19. Some people find that they sometimes are able to ignore pain. Indicate what percentage of the time this happens to you.

20. Some people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time. Indicate what percentage of the time this happens to you.

21. Some people sometimes find that when they are alone they talk out loud to themselves. Indicate what percentage of the time this happens to you.

22. Some people find that in one situation they may act so differently compared with another situation that they feel almost as if they were two different people. Indicate what percentage of the time this happens to you.

23. Some people sometimes find that in certain situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them (for example, sports, work, social situations, etc.). Indicate what percentage of the time this happens to you.

24. Some people sometimes find that they cannot remember whether they have done something or have just thought about doing that thing (for example, not knowing whether they have just mailed a letter or have just thought about mailing it). Indicate what percentage of the time this happens to you.
25. Some people find evidence that they have done things that they do not remember doing. Indicate what percentage of the time this happens to you.

26. Some people sometimes find writings, drawings, or notes among their belongings that they must have done but cannot remember doing. Indicate what percentage of the time this happens to you.

27. Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things that they are doing. Indicate what percentage of the time this happens to you.

28. Some people sometimes feel as if they are looking at the world through a fog so that people and objects appear far away or unclear. Indicate what percentage of the time this happens to you.
Appendix D

The Peritraumatic Dissociative Experiences Questionnaire- Self Report Version
Instructions: Please complete the items below by circling the choice that best describes your experiences and reactions during the trauma and immediately afterward. If an item does not apply to your experience, please circle “Not Apply”=0 “Not at all true”= 1, “Slightly true”=2, “Somewhat true”=3, “Very true”=4, and “Extremely true”=5.

• I had moments of losing track of what was going on- I “blanked out” or “spaced out” or in some way felt that I was not part of what was going on.
• I found that I was on “automatic pilot”_ I ended up doing things that I later realized I hadn’t actively decided to do.
• My sense of time changed- things seemed to be happening in slow motion.
• What was happening seemed unreal to me, like I was in a dream or watching a movie or play.
• I felt as though I were a spectator watching what was happening to me, as if I were floating above the scene or observing it as an outsider.
• There were moments when my sense of my own body seemed distorted or changed. I felt disconnected from my own body, or that it was unusually large or small.
• I felt as though things that were actually happening to others were happening to me- like I was being trapped when I really wasn’t.
• I was surprised to find out afterward that a lot of things had happened at the time that I was not aware of, especially things I ordinarily would have noticed.
• I felt confused; that is, there were moments when I had difficulty making sense of what was happening.
• I felt disoriented; that is, there were moments when I felt uncertain about where I was or what time it was.