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Dissociation and Sexual Trauma: The Moderating Role of Somatization

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I am submitting herewith a dissertation written by Amineh Abbas entitled "Dissociation and Sexual Trauma: The Moderating Role of Somatization." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

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**Dissociation and Sexual Trauma:
The Moderating Role of Somatization**

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Amineh Abbas
December 2014

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Dedication

This dissertation is dedicated to my father and mother, Hishem and Elizabeth Abbas, whose unceasing belief, continued support, and unconditional love have not only carried me through this seemingly monumental task, but also given me the strength to believe in myself.

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Abstract

This study examined various types of trauma, with an emphasis on sexual trauma across the lifespan, in a clinical sample of male and female adult outpatients assessed for trauma, somatization, and dissociation. Two hundred forty-five adult outpatients at the University of Tennessee Psychological Clinic were administered the Dissociative Experiences Scale (DES), the Traumatic Experiences Checklist (TEC), and Symptom Checklist-90-Revised, SCL-90-R, as part of the routine intake procedure. Of those individuals, 200 patients completed the questionnaires correctly and were included in the final study sample. The experience of sexual trauma indeed accounted for additional variance in somatization scores over and above the experience of other types of trauma, although it did not account for additional variance in dissociation scores. Also somatization was significantly correlated with dissociation. On the other hand, gender did not significantly increase the likelihood of having greater somatization. Furthermore, somatization did not significantly moderate the relationship between trauma and dissociation nor did it affect the non-significant relationship between gender and dissociation. Also, surprisingly in this sample, age of onset of sexual trauma did not significantly increase the likelihood of having greater dissociation or somatization. Finally, the experience of having a family member perpetrator did not account for additional variance in dissociation or somatization scores over and above having a non-family member perpetrator.

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Chapter I: Introduction

Historically, both dissociation and somatization were linked and referred to as hysteria by Freud and Janet (Breuer & Freud, 1995; Janet, 1929). Hysteria was thought to stem from an individual's experience of trauma, specifically sexual trauma (Breuer et al., 1995). However, in recent diagnostic classifications dissociative disorders and somatization disorders are considered separately (American Psychiatric Association [DSM-IV-TR], 2000). DSM-IV-TR (2000) defines dissociation as “a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment. The disturbance may be sudden or gradual, transient or chronic” (p. 822). DSM-IV-TR (2000) defines somatization as a pattern of medically unexplained complaints of multiple physical symptoms from several different organ systems.

It is critical to continue to examine how these conditions may be linked and relate to the experience of trauma. This is important because individuals who have experienced trauma and have symptoms of dissociation and somatization struggle to seek help for symptoms that they do not understand and for which physicians cannot find a medical explanation. Furthermore, these individuals may have difficulty forming meaningful interpersonal relationships due to a poor view of self and others. The medical literature has begun to recognize the importance of this critical issue, and acknowledge that the detrimental impact of negative childhood events on physical as well as mental health has been minimized or ignored for decades. Medical research has begun to demonstrate that “a broad range of adverse childhood events are significant risk factors for most mental health problems” (Read & Bentall, 2012, p. 89) as well as serious medical conditions as adults (Felitti et al., 1998).

The intense emotional arousal of trauma may interfere with the information processing and storage of traumatic memory due to being encoded differently than non-traumatic memory

(van der Kolk, 1994). That is, an absence of detailed and specific memory for the traumatic event may occur (van der Kolk, McFarlane, & Weisaeth, 1996). Dissociative symptoms “reflect the disintegration of emotion schemas with different and disconnected elements occupying consciousness” (Taylor, 2010, p. 344). Spiegel (1986) theorized that dissociation is a defense mechanism activated in response to the overwhelming pain and helplessness produced by trauma. He suggests that dissociation is different than other defense mechanisms because rather than protecting an individual from unconscious desires and drives, it shields them from immediate traumatic experiences. However, fragmentation of one’s sense of self may then occur. Briere (2006) found that a history of interpersonal violence or trauma (e.g., child abuse, rape) was a predictor of dissociative symptoms in trauma-exposed participants. This is even more likely to occur when an individual suffers the trauma at an early age (Abbas, 2011) and/or if the individual is unable to cope with and integrate the distressing trauma material into his or her self-concept (Abbas & Macfie, 2013). Furthermore, dissociation may become part of the individual’s emotion regulation strategy and be reactivated when exposed to future stress (Spiegel, 1986). In addition to dissociation, the stress of trauma may manifest itself in other ways such as somatization. For instance, Mechanic’s attribution theory of somatization proposed that stress, either psychological or physical, is the basis of somatization and thus results in either real or imagined bodily symptoms (Mechanic, 1972). Therefore, somatization may develop and may be “attributed to a preoccupation with and attempt to give meaning to the bodily sensations associated with activation of subsymbolic processes that are disconnected from symbolic representations” (Taylor, 2010, p. 344). In other words, trauma is nonverbal, or bodily, despite the type of trauma. For instance, Amar and Gennaro (2005) stated that women who have experienced intimate partner violence (i.e., physical injury, psychological abuse, sexual assault,

social isolation, stalking, deprivation, intimidation, and/or threats) have significantly higher somatization scores on the SCL-90-R than women who were not victims of intimate partner violence. That is, whether the trauma directly adversely affected the body (as in physical or sexual trauma), or not (as in psychological abuse, isolation, or deprivation), the trauma remained nonverbal or “in the body.” Moreover, sexual trauma and its manifestations and triggers, are even more centered on the body due to violation of the body self-boundaries and the greater degree of invasiveness inherent in sexual trauma, thereby suggesting an even higher likelihood that somatization may occur.

The current study attempts to further understand these traumatized individuals by seeking to examine not only the independent effects of sexual trauma and somatization on dissociation found in previous research, but also the possible moderating role of somatization on the relationship between sexual trauma and dissociation in a large adult clinical sample. We will also distinguish between and assess both individuals who report having experienced childhood sexual abuse and those who report having a sexual trauma as an adult and how age of onset may affect their levels of dissociation and somatization. This is important as age of onset of trauma has been shown in multiple studies to affect levels of dissociation differentially (Abbas, 2011; Lipschitz, Kaplan, Sorkenn, Chorney, & Asnis, 1996; Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). Theoretically, this could be due to the child’s developmentally immature regulation strategies and unsophisticated defense mechanisms. Thus, when trauma occurs during an early period in development, it may cause a disruption in one’s ability to consolidate a sense of self across behavioral states (Putnam, 1989) and can cause fragmentation of one’s sense of self (Spiegel, 1986). Furthermore, sexual traumatization entails violations of body self-boundaries and a higher degree of invasiveness than other types of trauma making it difficult for the

individual to inhabit his or her own body, therefore bodily preoccupation and manifestation of somatic symptoms may be more prominent in individuals who experience sexual trauma than in individuals who report other types of trauma.

Furthermore, dissociation of overwhelming emotions from cognitive awareness as a defense mechanism may either exacerbate or minimize the development of somatization. For instance, an individual who has experienced sexual trauma and is preoccupied with real or imagined bodily symptoms may either “remove” themselves from their body through dissociation or, on the other hand, be excessively present in their body and hypersensitive to bodily sensations. Therefore, it logically follows that moderation may occur. For instance, if an individual scores high on somatization, that participant’s dissociation score may be less than an individual who scores low on somatization, despite the presence of trauma which is associated with greater dissociation scores. The concept that invasiveness may be related to increased dissociation has also been shown in the medical literature. Diseth (2006) stated that exposure to an invasive medical treatment procedure performed by the child’s parent daily, even in the absence of “parental malevolence,” negatively impacted child development. This invasive medical procedure was significantly correlated with more frequent and severe dissociative symptomatology (Diseth, 2006). This further suggests that the invasive nature of the trauma may create an atmosphere in which the individual finds it difficult to inhabit his or her own body, which in turn may subsequently lead to dissociation and/or somatization.

In the current study the role of gender will also be explored. In this way, the study will further our understanding of the presence/absence of somatization in males as well as females, in which the majority of participants have experienced trauma (Trimble et al., 2006), in order to examine whether it is the presence of sexual trauma that is the condition in which somatization

may manifest itself or whether it is more likely associated with an individual's gender. However, when examining the interaction between gender, somatization, and dissociation, the effects of societal and cultural norms regarding gender may indeed have an impact. For instance, a female may not be in a position to outwardly express distress regarding her trauma. Thus, she might begin dissociating to manage the overwhelming emotional and/or physical pain involved, as well as her feelings that have been labeled antithetical regarding traditional and accepted gender norms (Stein, 2012). On the other hand, she may begin expressing her discomfort related to being in her body by somaticizing and having the distress of the trauma manifest itself through various bodily symptoms. This is not to say that males, especially as children, may not be in a similarly restrictive situation. For instance, trauma in which the victim characterizes the trauma as high in betrayal, that is "trauma perpetrated by someone with whom a victim is close" (Goldsmith, Freyd, & DePrince, 2012, p. 547) has been shown to predict dissociation and physical health complaints (Goldsmith et al., 2012). Thus, in the current study we will also distinguish between the victim's relationship to the perpetrator. That is, we assess whether the sexually traumatized individual has a family member vs. a non-family member perpetrator in order to investigate whether having a family member perpetrator increases the likelihood of greater dissociation or somatization scores. Furthermore, regarding gender, males may use aggression, an accepted gender norm for males, or substance abuse to defend against the distress they feel due to trauma rather than dissociation or somatization. Results of this study may inform interventions as currently somatization continues to be "beyond the reach of psychoanalytic treatments" (Bucci, 1997, p. 170) and individuals continue to seek medical treatment with no avail.

Sexual Trauma, Somatization, and Dissociation

Sexual trauma and its impact on dissociation have been studied comprehensively in the empirical literature. Ogawa et al. (1997) conducted a prospective longitudinal study over 19 years with 168 children who, due to poverty and single mother status, were considered high risk for poor developmental outcomes. In their initial analysis, they found that early onset sexual abuse predicted dissociation in early adulthood. Moreover, in this longitudinal study, the experience of sexual abuse was assessed objectively using coding of records, e.g., Department of Children's Services, rather than depending on participants' retrospective self-report. In another longitudinal study (Macfie, Cicchetti, & Toth, 2001a) and in a large cross-sectional study (Macfie, Cicchetti, & Toth, 2001b) of children in the preschool period, sexual abuse was associated with dissociation, as was physical abuse. The majority of research studies, however, are retrospective self-report. Despite possible bias due to the retrospective nature of the reporting of sexual abuse, the sheer number of similar findings and the corroboration of longitudinal and concurrent studies of children suggest that there is a strong association between the incidence of sexual abuse and dissociation (Collin-Vézina & Hébert, 2005; Kisiel & Lyons, 2001; Zlotnick, Zakriski, Shea, & Costello, 1996). Sack, Boroske-Leiner, and Lahmann (2010) performed a study of 240 adult outpatients, male and female. They measured various types of trauma including extrafamilial sexual violence, severe accidents, and natural disasters, among others. They categorized participants into three groups: those who had sexual trauma, nonsexual trauma, and no trauma. They found that dissociation symptoms were significantly more prevalent in individuals in the sexual trauma group compared to individuals in the nonsexual trauma and no trauma groups (Sack et al., 2010).

Nevertheless, it is important to recognize the empirical literature that demonstrates that physical abuse is also associated with dissociation (Collin-Vézina, Coleman, Milne, Sell, &

Daigneault, 2011; Roe-Sepowitz, Bedard, & Pate, 2007; Teicher, Samson, Polcari, & McGreener, 2006). In the medical literature, Draijer and Langeland (1999) stated that increased dissociation was primarily associated with overwhelming adverse childhood experiences, such as physical and sexual abuse. Moreover, the severity of the sexual abuse (e.g., degree of invasiveness) was directly related to more prominent dissociative symptoms (Draijer et al., 1999). Contrarily, there are some studies which maintain that sexual abuse does not have a direct correlation with greater dissociation (Gipple, Lee, & Puig, 2006; Talbot, Talbot, & Tu, 2004). However, there were limitations associated with each of these studies. Both studies used females only and samples of convenience, college undergraduates and inpatients respectively. Furthermore, Talbot et al. (2004) assessed adult sexual assault with a single-item measure and operationalized it as occurring within the last 6 months. Finally, Talbot et al.'s (2004) focus was on assessing shame-proneness and its impact on sexual abuse and dissociation which adds a more nuanced layer to the relationship which may have influenced and restricted the generalizability of the findings. Thus, it appears that even though the previously mentioned studies (Gipple et al., 2006; Talbot et al., 2004) do not support an association between sexual abuse and dissociation, their limitations may have contributed to these results, especially as the evidence for an association between sexual abuse and dissociation has been demonstrated in the majority of empirical literature through prospective longitudinal and retrospective studies alike.

Some retrospective self-report studies focused on a community sample of male and female adults. For instance, Twaite and Rodriguez-Srednicki (2004) used a community sample of 284 adults and found that individuals with childhood sexual abuse reported greater dissociation than individuals who did not report childhood abuse. Also, Teicher et al. (2006) used a community sample of "healthy subjects" and individuals who endorsed having a "history of an

unhappy childhood.” Participants were male and female adults from age 18-22. They found that sexual abuse was moderately associated with dissociation, even after controlling for other subtypes of trauma, including physical abuse, verbal abuse, and exposure to domestic violence (Teicher et al., 2006). It is important to note that 80% of maltreated children experience more than one subtype of maltreatment (Manly, Cicchetti, & Barnett, 1994), so distinguishing the effects of each individual subtype is generally quite difficult or implausible. Therefore, subtypes of trauma were ordered into a hierarchy of how seriously they violate social norms (Manly et al., 1994) due to the implicit understanding that sexual abuse rarely occurs in isolation. Thus, first all those adults reporting sexual abuse were taken out to form a sexual abuse group. Second, of those remaining, all those reporting experiencing other kinds of trauma were taken out to form the other trauma group. Third, all those left who did not report experiencing any trauma formed the no trauma group. Although we will not be assessing trauma group differences in the present study, we control for this well-known methodological issue in the literature by performing a hierarchical multiple regression analysis in which we add the subtype of trauma that most seriously violates social norms (sexual trauma) in a separate step from other trauma.

We also address several other gaps in the sexual trauma literature including the disproportionate use of female only samples (Gipple et al., 2006; Roe-Sepowitz et al., 2007; Samelius, Wijma, Wingren, & Wijma, 2010). Another gap in the literature that the present study aims to address is the disproportionate use of inpatient samples (Reinhard, Wolf, & Cozolino, 2010; Swett & Halpert, 1993; Talbot et al., 2004) which is a problem due to the fact that inpatients are generally in a more acute state and/or have more severe psychopathology than do outpatients. Furthermore, many studies use children only samples (Hulette, Fisher, Kim, Ganger, & Landsverk, 2008; Sim et al., 2005), especially children in residential settings (Collin-Vézina et

al., 2011; Kisiel et al., 2001). Using children only samples may not allow the study to capture how abuse or trauma that occurs during childhood affects an individual across the lifespan in response to the traumatic experience. Finally, an additional gap in the sexual trauma literature is the emphasis on childhood sexual abuse (Sansone, Wiederman, Tahir, & Buckner, 2009; Twaite et al., 2004; Zlotnick et al., 1996) rather than assessing sexual trauma across the lifespan. By limiting the sample to childhood sexual abuse survivors only, individuals who have experienced a sexual trauma as an adult are excluded, omitting an important population that can further our understanding of how sexual trauma may manifest itself and the defense mechanisms and social support an individual may have available to assist in managing the trauma. The present study addresses these gaps by utilizing a large, adult outpatient sample of males and females with a broad age range, a variety of diagnoses, and a high percentage of trauma. We chose to utilize a clinical outpatient population rather than a community sample in order to obtain a greater number of individuals who have experienced trauma, specifically sexual trauma, as clinical samples have on average higher rates of trauma exposure than do general populations (Briere, 2006). We assess sexual trauma as well as other subtypes of trauma (i.e., emotional neglect, emotional abuse, physical abuse, sexual harassment, and miscellaneous traumatic episodes such as loss of a family member, witnessing others undergo trauma, or serious bodily injury), throughout the individual's life. We anticipate that the experience of sexual trauma will account for additional variance in dissociation over and above the experience of other types of trauma. This belief is due to violation of body self-boundaries and the degree of invasiveness inherent in sexual trauma that makes being in the body no longer comfortable. Therefore, we expect to replicate the trend in the sexual trauma literature while extending it by using a more generalizable population.

The sexual trauma literature has also focused on the link between sexual trauma and somatization. The trend in the literature is that a relationship between sexual trauma and somatization has been demonstrated such that individuals who have experienced sexual trauma have greater somatization than those who have not experienced sexual trauma (Golding, 1999; Kinzl, Traweger, & Biebl, 1995; Stein et al., 2004). Spitzer, Barnow, Gau, Freyberger, and Grabe (2008) performed a study with 28 adult inpatients and outpatients, both male and female, who had a diagnosis of somatization disorder. They also had a control group of individuals with Major Depressive Disorder (MDD), matched for age and gender. Their results support that sexual abuse was significantly more frequent in the somatization group than in the MDD group (Spitzer et al., 2008).

In a study with a much larger sample, Eberhard-Gran, Schei, and Eskild (2007) used a sample of 2730 adult females from the community. They showed that women exposed to sexual violence were associated with reporting significantly more somatic symptoms than were women who had not been exposed to sexual violence (Eberhard-Gran et al., 2007). However, there are some discrepant studies that state there is no relationship between sexual abuse and somatization (Brawman-Mintzer, Monnier, Wolitzky, & Falsetti, 2005; Brown, Schrag, & Trimble, 2005; Sansone et al., 2009). Each of these studies presented sampling and assessment limitations, however. For example, Brawman-Mintzer et al. (2005) utilized a sample of patients diagnosed with Generalized Anxiety Disorder (GAD). Furthermore, they only assessed somatic symptoms associated with GAD such as muscle tension, autonomic hyperactivity, and vigilance which are not the more universally recognized symptoms of somatization such as headaches, nausea, or faintness/dizziness (Derogatis, 1994). Brown et al. (2005) had a small sample size of a highly specialized population of 22 individuals diagnosed with somatization disorder who had sought

treatment at a specialist neurological hospital. Finally, Sansone et al. (2009) also had a methodological issue present in their study in which the assessment measure of childhood trauma was developed by one of the authors and had not been tested for validity or reliability.

Even still in the literature supporting the relationship between sexual abuse and somatization, methodological and sampling issues continue to exist. Similar to Eberhard-Gran et al. (2007), many studies in the sexual abuse and somatization literature have utilized female only samples (Stein et al., 2004; Zlotnick et al., 1996) or had relatively few male participants compared to the number of female participants (Brown et al., 2005; Spitzer et al., 2008). Even the studies whose female: male ratio was more proportionate have considerably more females than males (Sack et al., 2010; Sansone et al., 2009). For instance, Sack et al. (2010) had 167 females and only 73 males. Consequently, it is important to investigate the association of sexual trauma and somatization across gender in order to be able to understand it more fully. The empirical literature's current stance in some ways perpetuates the 19th century view of Janet and Freud that somatization, or historically termed hysteria, is predominately a condition that females are prone to (Breuer et al., 1995; Janet, 1929). However, in an attempt to be more in accordance with Briquet, another 19th century psychologist, the current study attempts to investigate somatization (i.e., hysteria) in males as well as females (Trimble et al., 2006). This is in order to examine whether it is the presence of sexual trauma or, in contrast, an individual's gender, in which somatization may manifest itself. In an effort to address this gap in the literature, the current study has a large sample of male and female adult outpatients and assesses sexual trauma and somatization. We expect that the experience of sexual trauma will account for additional variance in somatization over and above the experience of other types of trauma.

Additionally, there has been previous research that has focused on the relationship between somatization and dissociation. The majority of the research has found that somatization is associated with greater dissociation (Saxe, Chinman, Berkowitz, & Hall, 1994; van der Kolk, Pelcovitz, Roth, & Mandel, 1996; Walker, Katon, Neraas, Jemelka, & et al., 1992). For instance, Brown et al. (2005) had a sample of 22 inpatients and outpatients with somatization disorder and a comparison group of 19 medical patients. They found that the somatization group had higher dissociative amnesia scores than the medical comparison group (Brown et al., 2005). Nevertheless, there have been few discordant studies that report there is not an association between somatization and dissociation (Gold, Ketchman, Zucker, Cott, & Sellers, 2008; Litwin & Cardeña, 2001). These studies have methodological or sampling issues that may have implications for the interpretation and/or generalizability of their findings. For instance, Gold et al. (2008) used the MMPI-2 scales of Hypochondriasis and Hysteria to measure somatic symptoms which consist of characterological traits and other symptoms besides somatic complaints. Litwin et al. (2001) used a small sample size of a highly specialized population of 41 inpatients at an epilepsy center who were diagnosed with either epileptic seizures or psychogenic non-epileptic seizures. In the present study, we plan to demonstrate that somatization will be correlated with dissociation in the sample as a whole. As mentioned previously, dissociation of overwhelming emotions from cognitive awareness may exacerbate the development of somatization in order to avoid uncomfortable, confusing, or painful emotions related to the experience of trauma.

Numerous studies have investigated the previously mentioned main effects; however, we not only plan to replicate these findings but we also plan to expand the literature by examining the possible moderating effect of somatization on the relationship between sexual trauma and

dissociation. As previously mentioned, the empirical literature denotes a trend supporting a relationship between sexual trauma and dissociation/somatization respectively. Additionally, dissociation of overwhelming emotions from cognitive awareness as a defense mechanism may either exacerbate or minimize the development of somatization. That is, an individual who has experienced sexual trauma and is preoccupied with imagined or real bodily symptoms may either “remove” themselves from their body through dissociation or, on the other hand, be excessively present in their body and hypersensitive to bodily sensations. Moreover, sexual traumatization entails violations of body self-boundaries and a higher degree of invasiveness than other types of trauma making it difficult for the individual to inhabit his or her own body, therefore bodily preoccupation and manifestation of somatic symptoms may be more prominent in individuals who experience sexual trauma than in individuals who report other trauma. Thus, we infer that in the sample as a whole, of those who report trauma (in general), somatization will moderate the effect of trauma on dissociation, such that participants with high scores on somatization may have decreased dissociation scores compared to a participant who scores low on somatization, despite the presence of trauma.

Gender, Somatization, and Dissociation

Finally, while researching sexual trauma, dissociation, and somatization, we noted the role of gender and concluded that it must be acknowledged and further explored. In reference to gender and somatization, it has been overwhelmingly demonstrated in the literature that somatization indeed is affected by gender, such that females demonstrate significantly greater somatization (Klonoff, Landrine, & Campbell, 2000; Punamäki, Komproe, Qouta, Elmasri, & de Jong, 2005; Shek, 1989; Zink, Klesges, Stevens, & Decker, 2009). For instance, Zink et al. (2009) utilized a sample of 156 adults, males and females, from the community who endorsed having a

sexual trauma either as a child and/or as an adult. They found that females had significantly greater somatization than males (Zink et al., 2009). Albeit the majority of the literature points to a significant gender difference, there are studies that suggest there is no evidence for this relationship (e. g., Khodarahimi, 2010). Khodarahimi's (2010) discrepant findings could be due to the use of restricted age ranges in his sample (i.e., adolescents and young adults), the use of an Iranian sample and the cultural differences that may confound the research, and/or the fact that he was assessing gender's role in affecting several indices of psychopathology as well as psychopathic deviance as part of his study. However, our study, similar to Zink et al. (2009), utilizes a sample of adult males and females, ranging from age 18 to 64 in order to assess gender's effect on somatization in a largely traumatized sample. Based on the prevalence of empirical evidence that points to a gender difference, we anticipate that there are gender differences in somatization, such that females will have greater somatization than males in the sample as a whole.

In regards to gender and dissociation, the trend in the current literature appears to demonstrate that dissociation does not have a significant correlation with gender (Fullerton et al., 2001; Olf, Langeland, Draijer, & Gersons, 2007; Sack et al., 2010; Teicher et al., 2006). For instance, Punamäki et al. (2005) used a sample of 585 adults and adolescents in the community who either had trauma or no trauma. They found that there was no gender difference in the trauma group participants' peritraumatic dissociation scores (Punamäki et al., 2005). A few research studies demonstrate that dissociation is related to gender, such that females showed significantly greater dissociation than males (Bryant & Harvey, 2003; Kisiel et al., 2001). Consequently, based on the review of literature and on the theory that suggests that the

mechanism that induces dissociative symptoms is the intense emotional arousal of trauma (van der Kolk, 1994), it is likely that gender is not associated with dissociation.

Therefore, finally, we also plan to analyze an interaction similar to a study that found a moderation effect for gender, somatization, and dissociation (Gold et al., 2008). Gold et al. (2008) studied 251 adult outpatient survivors of childhood sexual abuse, males and females. They measured somatization using the Symptom Checklist-90-Revised, SCL-90-R (Derogatis, 1994), and dissociation with the Dissociative Experiences Scale, DES (Bernstein & Putnam, 1986). They found that gender moderated the effect of somatization on dissociation such that somatization and dissociation were significantly correlated only in women and that this relationship was absent in men (Gold et al., 2008). The current study also plans to utilize the SCL-90-R and the DES to measure somatization and dissociation respectively. Furthermore, we aim to analyze a moderation between gender, somatization, and dissociation. However, we hope to demonstrate that in the sample as a whole, somatization will moderate the effect of gender on dissociation. This differs from Gold et al.'s (2008) study, in that in the present study somatization is assigned as the moderator rather than gender. Since we don't anticipate a gender difference in relation to dissociation, we will test this moderation to determine if the level of somatization an individual experiences differentially impacts how gender affects dissociation.

Current Hypotheses

In summary, in an effort to address the use of circumscribed populations in the sexual trauma, somatization, and dissociation literature, (e.g., samples of females only, inpatients only, children only, and survivors of childhood sexual abuse only) the present study utilizes a large sample of male and female adult outpatients who have endorsed either experiencing sexual trauma, other types of trauma, or no trauma in their lifetime. We hypothesize 1) that the

experience of sexual trauma will account for additional variance in dissociation over and above the experience of other types of trauma; 2) that the experience of sexual trauma will account for additional variance in somatization over and above the experience of other types of trauma; 3) that somatization will be correlated with dissociation in the sample as a whole; 4) that in the sample as a whole, of those who report trauma, somatization will moderate the effect of trauma on dissociation; 5) that there are gender differences in somatization, such that females will have greater somatization than males in the sample as a whole; and 6) that in the sample as a whole, somatization will moderate the effect of gender on dissociation.

Chapter II: Method

Procedures

The University of Tennessee Psychological Clinic is a training facility for non-licensed Clinical Psychology graduate students. It serves a low socioeconomic status population who are uninsured by utilizing a sliding fee schedule. All adults seeking individual psychotherapy or a psychological evaluation at the University of Tennessee Psychological Clinic from January 2010 to March 2011, were administered several questionnaires as part of the clinic's routine intake procedure. The questionnaires used in this study included the Dissociative Experiences Scale (DES), the Traumatic Experiences Checklist (TEC), the Symptom Checklist-90-Revised (SCL-90-R), and a brief demographics questionnaire.

Participants

We chose to utilize a clinical population rather than a community sample in order to obtain a greater number of individuals who have experienced trauma, specifically sexual trauma, as clinical samples have on average higher rates of trauma exposure than do general populations (Briere, 2006). We administered questionnaires to adult outpatients ($N = 245$). We excluded those who refused to complete the questionnaires ($n = 5$) and those who filled them out incompletely ($n = 40$). Therefore, we excluded a total of 18% ($n = 45$) of the individuals, which created the final study sample ($N = 200$). See Table 1 for details regarding group differences. Of the adults who completed all the questionnaires correctly ($N = 200$), 84% reported having a trauma ($n = 168$), 25% reported having sexual trauma ($n = 49$), 83% reported having a trauma other than sexual trauma ($n = 166$) (i.e., emotional neglect, emotional abuse, physical abuse, sexual harassment, and miscellaneous traumatic episodes), and 16% reported not having a trauma ($n = 32$). For the sample utilized in the current study ($N = 200$), participants' age ranged

from 18 to 64 ($M = 28.94$, $SD = 10.61$), 45% were males and 55% were females. Demographics are as follows for the percentage of individuals who reported various types of trauma. For those who reported sexual trauma either as a child or an adult ($n = 49$), the sample of adults ranged in age from 19 to 62 ($M = 31.22$, $SD = 10.35$), 22% were males and 78% were females. We also distinguished between childhood sexual abuse and sexual trauma as an adult and analyzed whether the age of onset of sexual trauma significantly impacted dissociation and somatization. For those who reported sexual abuse as a child ($n = 32$), the sample of adults ranged in age from 19 to 61 ($M = 30.53$, $SD = 9.64$), 19% were males and 81% were females. For those who reported sexual trauma as an adult ($n = 10$), the sample of adults ranged in age from 22 to 62 ($M = 31.46$, $SD = 10.33$), 30% were males and 70% were females. For those who reported sexual trauma both as a child and as an adult ($n = 2$), the sample of adults ranged in age from 21 to 38 ($M = 28.64$, $SD = 9.23$), 0% were males and 100% were females. For those who reported sexual trauma either as a child or an adult but did not indicate the age at which the sexual trauma occurred ($n = 7$), the sample of adults ranged in age from 20 to 43 ($M = 30.62$, $SD = 9.52$), 29% were males and 71% were females. Furthermore, we distinguished between the victim's relationship to the perpetrator, that is whether it was a family member vs. a non-family member perpetrator. For those who reported sexual trauma and had either a family or a non-family member perpetrator ($n = 49$), the sample of adults ranged in age from 19 to 62 ($M = 31.22$, $SD = 10.35$), 22% were males and 78% were females. For those who reported a family member perpetrator ($n = 17$), the sample of adults ranged in age from 20 to 61 ($M = 30.53$, $SD = 9.64$), 12% were males and 88% were females. For those who reported a non-family member perpetrator ($n = 37$), the sample of adults ranged in age from 19 to 62 ($M = 31.22$, $SD = 10.35$), 27% were males and 73% were females. For those who reported both a family and a non-family

member perpetrator ($n = 5$), the sample of adults ranged in age from 19 to 61 ($M = 40.40$, $SD = 15.42$), 20% were males and 80% were females. For those who reported other types of trauma ($n = 166$), the sample of adults ranged in age from 18 to 64 ($M = 29.57$, $SD = 10.78$), 55% were males and 45% were females. For participants reporting no trauma ($n = 32$), the sample of adults ranged in age from 18 to 51 ($M = 26.13$, $SD = 9.54$), 50% were males and 50% were females. See Table 1 for a summary of demographics (e.g., education, marital status, ethnicity, etc.), dissociation, and somatization scores for the final study sample ($N = 200$), as well as for the trauma variables. See Table 2 for correlations of dissociation, somatization, and demographics. Not all participants provided additional demographic information as compliance was optional and did not affect provision of services.

Measures

Dissociation

Dissociation may be assessed along a continuous scale that ranges between normative and pathological dissociation. Pathological dissociation may be assessed categorically in terms of presence/absence of a dissociative disorder (e.g., Dissociative Identity Disorder (DID) or Depersonalization Disorder). The current study conceptualizes and measures dissociation on a continuum and uses the self-report measure, the Dissociative Experiences Scale, DES, (Bernstein et al., 1986). There are 28 items for which the participant reports the percentage of time spent experiencing each symptom from 0%-100%. Some sample items include, “Some people find that they have no memory for some important events in their lives (for example, a wedding or a graduation);” “Some people have the experience that other people, objects, and the world around them are not real;” and “Some people have the experience of driving a car and suddenly realizing that they don’t remember what has happened during all or part of the trip” (Bernstein et al.,

1986). This measure has been used in many studies and has been validated through meta-analysis (van Ijzendoorn & Schuengel, 1996). The DES has good test-retest reliability ($r = .93$), excellent construct validity, and high internal consistency with Cronbach's alphas of $\alpha = .96$ and $\alpha = .97$ obtained during test sessions 1 and 2, respectively (Dubester & Braun, 1995; van Ijzendoorn et al., 1996). There is support for convergent and predictive validity, specifically with traumatic experiences and the diagnosis of dissociative disorders (van Ijzendoorn et al., 1996). DES scores for the final study sample ($N = 200$) had high internal consistency, with a Cronbach's $\alpha = .92$.

Traumatic Experiences

DSM-IV-TR (2000) defines trauma as an event a “person experiences, witnesses, or is confronted with . . . that involves actual or threatened death or serious injury, or a threat to the physical integrity of self or others; and the person's response involves intense fear, helplessness, or horror” (p. 467). The Traumatic Experiences Checklist, TEC (Nijenhuis, Van der Hart, & Vanderlinden, 1996), is a 25 item self-report measure that assesses six areas of trauma: emotional neglect, emotional abuse, physical abuse, sexual harassment, sexual trauma, and miscellaneous traumatic episodes (e.g., loss of a family member, witnessing others undergo trauma, or serious bodily injury). Participants indicate age of onset of trauma and duration, as well as severity of impact, and the relationship of the victim to the perpetrator (Dorahy, Lewis, Millar, & Gee, 2003). For the purpose of this study, sexual trauma was the targeted subtype. The TEC briefly defines sexual trauma as any unwanted sexual act that involves physical contact (Nijenhuis et al., 1996). In the present study, there will be three trauma variables: sexual trauma, other types of trauma, and trauma (in general). First, the sexual trauma variable indicates whether an individual endorsed having at least one sexual trauma at any point during his or her lifetime. If sexual trauma was endorsed then the individual received a score of 1. If sexual

trauma was not endorsed then he or she received a score of 0. Nevertheless, due to the implicit understanding that sexual trauma rarely occurs in isolation, individuals who reported sexual trauma may have experienced other types of trauma in addition to sexual trauma. Second, the other type of trauma variable indicates whether an individual endorsed having at least one type of trauma other than sexual trauma at any point during his or her lifetime. If a type of trauma other than sexual trauma was endorsed then the individual received a score of 1. If *only* a sexual trauma was endorsed ($n = 2$) or if the individual did not endorse a trauma at all, then he or she received a score of 0. Third, the trauma (in general) variable indicates that an individual endorsed having any type of trauma at any point during his or her lifetime. Therefore, if any type of trauma was endorsed then the individual received a score of 1. If the individual did not endorse a trauma at all, then he or she received a score of 0. Finally, we will also analyze the relationship of the victim to the perpetrator, specifically distinguishing between family member vs. non-family member perpetrators and how this may affect levels of dissociation and somatization. There is support for both test-retest reliability for the TEC ($r = .91$) and for concurrent validity between the TEC and the Stressful Life Events Screening Questionnaire, SLESQ, ($r = .77$). It has high internal consistency, with Cronbach's alphas of $\alpha = .86$ and $\alpha = .90$ at times 1 and 2, respectively (Nijenhuis, Van der Hart, & Kruger, 2002). TEC scores for the final study sample ($N = 200$) had high internal consistency, with a Cronbach's $\alpha = .82$.

Somatization

According to the Symptom Checklist-90-Revised, SCL-90-R, (Derogatis, 1994), the operational definition of the Somatization subscale is “distress arising from the perception of bodily dysfunction” (Derogatis, 1994, p. 9). Generally, somatic complaints focus on respiratory, gastrointestinal, cardiovascular, and other bodily systems that have “strong autonomic mediation”

(Derogatis, 1994, p. 9). Pain, discomfort, and weakness in the muscles as well as numbness, tingling, or heaviness in various parts of the body are also components of somatization. The SCL-90-R measures nine primary symptom dimensions, including somatization, and three global indices of distress. It is a 90 item self-report symptom inventory that assesses an individual's present psychological symptom level. The participant rates each symptom on a five-point scale of distress (0-4) that ranges from "Not at all" to "Extremely." The Somatization subscale has 12 items and is the target of the present study. These items include such real or imagined symptoms as headaches, nausea or upset stomach, or a lump in the throat (Derogatis, 1994). The SCL-90-R Somatization subscale has moderate test-retest reliability ($r = .68$) despite a 10 week time lapse. Furthermore, the Somatization subscale has good test-retest reliability ($r = .86$) when the time lapse is only one week. Additionally, the SCL-90-R demonstrates good internal structure validity, good convergent-discriminant validity, specifically with the MMPI (Derogatis, 1994), and has high internal consistency with Cronbach's alphas ranging from $\alpha = .79$ to $\alpha = .90$ across subscales. The Somatization subscale was validated on the MMPI Clinical, Wiggins, and Tryon scales, as well as the Middlesex Hospital Questionnaire and demonstrated moderately high correlations with like dimensions on each of these measures (Derogatis, 1994). The Somatization subscale has high internal consistency with a Cronbach's alpha of $\alpha = .88$. Somatization scores for the final study sample ($N = 200$) had high internal consistency, with a Cronbach's $\alpha = .90$.

Chapter III: Results

Our hypotheses based on the review of the empirical literature were tested in the following ways. Hypothesis 1 states that the experience of sexual trauma will account for additional variance in dissociation over and above the experience of other types of trauma. We used a hierarchical multiple regression analysis to study this hypothesis by entering each of the independent trauma variables (i.e., trauma (in general), other trauma, and sexual trauma) separately into the same regression analysis in order to determine the unique contribution of each type of trauma on the dependent variable, dissociation. In the first step, trauma (in general) was entered as the independent trauma variable, while dissociation was the dependent variable. The overall model was significant, $R^2 = .09$, $F(1, 198) = 19.20$, $p < .001$. Trauma (in general) was significant, $\beta = .30$, $t(198) = 4.38$, $p < .001$. In the second step, other trauma was entered as an additional independent trauma variable, while dissociation remained the dependent variable. The R squared change was not significant, $\Delta R^2 = .01$, $F(1, 197) = 2.22$, $p > .05$. Trauma (in general) was not significant, $\beta = -.07$, $t(197) = 0.28$, $p > .05$. Other trauma was not significant, $\beta = .38$, $t(197) = 1.49$, $p > .05$. In the third step, sexual trauma was entered as an additional independent trauma variable, while dissociation remained the dependent variable. The R squared change was not significant, $\Delta R^2 = .02$, $F(1, 196) = 3.44$, $p > .05$. Trauma (in general) was not significant, $\beta = -.18$, $t(196) = 0.70$, $p > .05$. Other trauma was not significant, $\beta = .46$, $t(196) = 1.80$, $p > .05$. Sexual trauma was not significant, $\beta = .13$, $t(196) = 1.86$, $p > .05$. Thus, contrary to our hypothesis, the experience of sexual trauma did not account for additional variance in dissociation over and above the experience of other types of trauma. All tables are in the Appendix. See Table 3 for details of each step of the regression, coefficients, and t -test significance.

Hypothesis 2 states that the experience of sexual trauma will account for additional variance in somatization over and above the experience of other types of trauma. We used a hierarchical multiple regression analysis to address this hypothesis by entering each of the independent trauma variables (i.e., trauma (in general), other trauma, and sexual trauma) separately into the same regression analysis in order to determine the unique contribution of each type of trauma on the dependent variable, somatization. In the first step, trauma (in general) was entered as the independent trauma variable, while somatization was the dependent variable. The overall model was significant, $R^2 = .11$, $F(1, 198) = 25.44$, $p < .001$. Trauma (in general) was significant, $\beta = .34$, $t(198) = 5.04$, $p < .001$. In the second step, other trauma was entered as an additional independent trauma variable, while somatization remained the dependent variable. The R squared change was not significant, $\Delta R^2 = .001$, $F(1, 197) = 0.19$, $p > .05$. Trauma (in general) was not significant, $\beta = .23$, $t(197) = 0.91$, $p > .05$, nor was other trauma, $\beta = .11$, $t(197) = 0.44$, $p > .05$. In the third step, sexual trauma was entered as an additional independent trauma variable, while somatization remained the dependent variable. The R squared change was significant, $\Delta R^2 = .04$, $F(1, 196) = 9.41$, $p < .01$ and accounted for 4% of additional variance over and above Step 2, with a total of 16% (14% adjusted) of variance in somatization scores. Trauma (in general) was not significant, $\beta = .05$, $t(196) = 0.20$, $p > .05$, nor was other trauma, $\beta = .24$, $t(196) = 0.97$, $p > .05$. On the other hand, sexual trauma was significant, $\beta = .21$, $t(196) = 3.07$, $p < .01$. Thus, as hypothesized, the experience of sexual trauma accounted for additional variance in somatization over and above the experience of other types of trauma. See Table 4 for details of each step of the regression, coefficients, and t -test significance.

Hypothesis 3 states that somatization will be correlated with dissociation in the sample as a whole. We used a bivariate two-tailed Pearson's correlation to test this hypothesis. As

hypothesized, somatization correlated significantly with greater dissociative symptomatology, $r = .43, p < .001$. Hypothesis 4 states that in the sample as a whole, of those who report trauma (in general), somatization will moderate the effect of trauma on dissociation. A simultaneous multiple regression analysis was used to test this hypothesis with somatization, trauma, and the interaction between somatization and trauma entered on the same step. Prior to conducting the simultaneous multiple regression analysis the somatization variable was centered. An interaction term was created by computing the product of the trauma variable and the centered somatization variable in order to test whether somatization moderated the effect of trauma on dissociation scores. Somatization, trauma, and the interaction between somatization and trauma were entered on the same step. The overall model was significant, $F(3, 196) = 18.89, p < .001$ and accounted for 22% (21% adjusted) of variance in dissociation scores. Trauma was significant, $\beta = .25, t(196) = 3.02, p = .003$, while somatization was not significant, $\beta = .09, t(196) = 0.47, p > .05$. Also, the interaction was not significant, thus, contrary to our hypothesis somatization did not moderate the effect of trauma on dissociation scores, $\beta = .29, t(196) = 1.63, p > .05$. See Table 5 for details of the interaction effect.

Hypothesis 5 states that we hypothesized there would be gender differences in somatization, such that females will have greater somatization than males in the sample as a whole. We used an independent samples t -test to study this hypothesis. Contrary to our hypothesis, the somatization group mean for females ($M = 54.36$) was not significantly greater than the somatization group mean for males ($M = 55.59$), $t(198) = 0.66, p > .05$. Finally, in hypothesis 6 we expected that in the sample as a whole, somatization will moderate the effect of gender on dissociation. A simultaneous multiple regression analysis was used to test this hypothesis, with somatization, gender, and the interaction between somatization and gender

entered on the same step. Prior to conducting the simultaneous multiple regression analysis the somatization variable was centered. An interaction term was created by computing the product of the gender variable and the centered somatization variable in order to test whether somatization moderated the effect of gender on dissociation scores. Somatization, gender, and the interaction between somatization and gender were entered on the same step. The overall model was significant, $F(3, 196) = 15.87, p < .001$ and accounted for 20% (18% adjusted) of variance in dissociation scores. Gender was not significant, $\beta = .08, t(196) = 1.20, p > .05$, while somatization was significant, $\beta = .40, t(196) = 4.25, p < .001$. However, the interaction was not significant, thus, contrary to our hypothesis somatization did not moderate the effect of gender on dissociation scores, $\beta = .06, t(196) = 0.59, p > .05$. See Table 6 for details of the interaction effect.

Since the experience of sexual trauma indeed accounted for additional variance in somatization scores over and above the experience of other types of trauma but did not account for additional variance in dissociation scores, we also performed some post-hoc analyses to better and more thoroughly understand this effect. First, we also distinguished between childhood sexual abuse and sexual trauma as an adult and analyzed whether the age of onset of sexual trauma significantly impacted dissociation and somatization. These were tested by conducting two linear regression analyses, one to assess dissociation and one to assess somatization. In the first regression, age of onset of sexual trauma was entered as the independent variable, while dissociation was the dependent variable. The overall model was not significant, $F(1, 40) = 0.02, p > .05$. Age of onset of sexual trauma was not significant, $\beta = -.02, t(40) = -0.14, p > .05$. Thus, in this sample, earlier age of onset of sexual trauma did not significantly predict greater dissociation scores. See Table 7 for coefficients and *t*-test

significance. In the second regression, age of onset of sexual trauma was entered as the independent variable, while somatization was the dependent variable. The overall model was not significant, $F(1, 40) = 0.48, p > .05$. Age of onset of sexual trauma was not significant, $\beta = -.11, t(40) = -0.69, p > .05$. Thus, in this sample, earlier age of onset of sexual trauma did not significantly predict greater somatization scores. See Table 8 for coefficients and t -test significance.

In the next two post-hoc analyses, we also analyzed the relationship of the victim to the perpetrator, specifically distinguishing between family member vs. non-family member perpetrators and how this may affect levels of dissociation and somatization. These were tested by conducting two hierarchical multiple regression analyses, one to assess dissociation and one to assess somatization. For the first regression, in the first step, non-family member perpetrator was entered as the independent variable, while dissociation was the dependent variable. The overall model was significant, $R^2 = .08, F(1, 47) = 4.08, p < .05$ and accounted for 8% (6% adjusted) of variance in dissociation scores. Non-family member perpetrator was significant, $\beta = .28, t(47) = 2.02, p < .05$. In the second step, family member perpetrator was entered as an additional independent variable, while dissociation remained the dependent variable. The R squared change was not significant, $\Delta R^2 = .06, F(1, 46) = 3.36, p > .05$. Non-family member perpetrator was significant, $\beta = .60, t(46) = 2.73, p = .10$, while family member perpetrator was not significant, $\beta = .40, t(46) = 1.83, p > .05$. Thus, in this sample of individuals who reported a sexual trauma, having a family member perpetrator did not account for additional variance in dissociation over and above having a non-family member perpetrator. See Table 9 for details of each step of the regression, coefficients, and t -test significance.

Finally, for the second regression, in the first step, non-family member perpetrator was

entered as the independent variable, while somatization was the dependent variable. The overall model was not significant, $R^2 = .00$, $F(1, 47) = 0.00$, $p > .05$. Non-family member perpetrator was not significant, $\beta = .00$, $t(47) = -0.001$, $p > .05$. In the second step, family member perpetrator was entered as an additional independent variable, while somatization remained the dependent variable. The R squared change was not significant, $\Delta R^2 = .01$, $F(1, 46) = 0.56$, $p > .05$. Thus, in this sample of individuals who reported a sexual trauma, having a family member perpetrator did not account for additional variance in somatization over and above having a non-family member perpetrator. See Table 10 for details of each step of the regression, coefficients, and t -test significance.

Chapter IV: Discussion

In summary, in a clinical sample of male and female adult outpatients assessed for trauma, somatization, and dissociation, the experience of sexual trauma indeed accounted for additional variance in somatization scores over and above the experience of other types of trauma, while it did not account for additional variance in dissociation. Also somatization was significantly correlated with dissociation. On the other hand, gender did not significantly increase the likelihood of having greater somatization. Furthermore, somatization did not significantly moderate the relationship between trauma and dissociation nor did it affect the non-significant relationship between gender and dissociation. Also, surprisingly in this sample, age of onset of sexual trauma did not significantly increase the likelihood of having greater dissociation or somatization. Finally, the experience of having a family member perpetrator did not account for additional variance in dissociation or somatization scores over and above having a non-family member perpetrator.

The present study extended current literature on the relationship between sexual trauma, somatization, and dissociation. It utilized a clinical sample of male and female adults in an outpatient setting who had a variety of diagnoses and endorsed having experienced at least one of six subtypes of trauma or no trauma at all. This study examined a large, diverse population, with a broad age range. Furthermore, the emphasis on investigating sexual trauma across the lifespan also contributed to the empirical literature about sexual trauma's impact on dissociative and somaticizing symptomatology over and above the experience of other trauma. Furthermore, this study had breadth by investigating the other trauma variable which included six subtypes of trauma (i.e., emotional neglect, emotional abuse, physical abuse, sexual harassment, sexual abuse, and miscellaneous traumatic episodes); while, it also had depth by emphasizing the

unique impact sexual trauma across the lifespan has on dissociation and somatization. The variety of subtypes of trauma composited and investigated in this study in addition to the focus on sexual trauma across the lifespan (including but not limited to childhood sexual abuse as in many studies), was necessary to assess in a single study in order to contribute to the trauma/sexual trauma literature while also providing valuable information to medical research due to our emphasis on somatization. Additionally the inclusion of dissociation and somatization in the same study in order to further understand the possible link between them was also a strength of the current study. Historically, both dissociation and somatization were linked and referred to as hysteria by Freud and Janet (Breuer et al., 1995; Janet, 1929). Only in recent years have the diagnostic classification of dissociative and somatization disorders been considered separately (DSM-IV-TR, 2000). In the DSM-III, Somatoform Disorders are reportedly common in individuals with Multiple Personality Disorder (currently known as Dissociative Identity Disorder). It also states that hypochondriasis may be a complication of Depersonalization Disorder (American Psychiatric Association, 1980). Even in the DSM-IV-TR (2000), dissociative symptoms such as amnesia are possible criteria for somatization disorder. Nevertheless, the diagnostic classification of dissociative and somatic symptom disorders continues to be considered separately in the DSM-5 (American Psychiatric Association, 2013). Also it is important to keep in mind while reading and interpreting the current study's results that the criteria for Somatization Disorder, presently renamed as Somatic Symptom Disorder in the DSM-5 (APA, 2013), have been changed and updated. First, the criterion regarding having a history of somatic complaints before age 30 has been removed, along with the criteria specifying particular body systems and the number of symptoms necessary in each body system for the individual to be diagnosed. Also, the criterion that the symptom cannot be "fully explained by a

known general medical condition” (APA, 2000, p. 490) has also been omitted. Finally, in the new criteria for Somatic Symptom Disorder, the emphasis is on the individual’s level of distress and disruption in functioning, as well as the amount of time and energy expended in association with the somatic complaints (APA, 2013).

Several of the studies in the empirical literature have limited samples, such as females only (Collin-Vézina et al., 2005; Eberhard-Gran et al., 2007; Roe-Sepowitz et al., 2007; Zlotnick et al., 1996) or children only (Collin-Vézina et al., 2011; Collin-Vézina et al., 2005; Kisiel et al., 2001). Additionally, many studies focus on only one specific type of trauma, i.e., childhood sexual abuse (e.g., Collin-Vézina et al., 2005; Gold et al., 2008). Furthermore, in the current study all other types of trauma aside from sexual trauma were composited. This method was employed in order to more clearly make the distinction between the effect sexual trauma across the lifespan has on dissociation and somatization in comparison to other types of trauma in general. This was done rather than investigating each subtype separately which has been frequently investigated. The present study attempted to extend the current literature and fill these gaps of information by addressing each of these methodological issues in turn.

The experience of sexual trauma did not account for additional variance in dissociation over and above the experience of other types of trauma; while, on the other hand, the experience of sexual trauma accounted for additional variance in somatization over and above the experience of other types of trauma. Thus, in this study having a sexual trauma predicted significantly greater somatization scores than having another type of trauma. This suggests that bodily preoccupation and manifestation of somatic symptoms are more prominent in individuals who experience sexual trauma than in individuals who report other types of trauma. For instance, an individual who has experienced sexual trauma may be excessively present in their body and

hypersensitive to bodily sensations thereby making him or her excessively preoccupied with their real or imagined bodily symptoms. This could also be true of an individual who experienced physical abuse; however, through compositing all other subtypes of trauma into a single variable this effect may have been diminished. Furthermore, the effect of sexual trauma on somatization further suggests that the invasive nature of the trauma may create an atmosphere in which the individual finds it difficult to inhabit his or her own body, which in turn may subsequently lead to somatization. Mechanic's attribution theory of somatization proposed that stress, either psychological or physical, is the basis of somatization and thus results in either real or imagined bodily symptoms (Mechanic, 1972). In other words, trauma is nonverbal, or bodily, despite the type of trauma.

Somatization was correlated with dissociation in the sample as a whole. That is, in this study having greater somatization scores was associated with having significantly greater dissociation scores. Thus, dissociation of overwhelming emotions from cognitive awareness may exacerbate the development of somatization in order to avoid uncomfortable, confusing, or painful emotions related to the experience of trauma. This is in accordance with the majority of the current empirical literature that asserts that somatization is significantly associated with dissociation (Brown et al., 2005; Saxe et al., 1994; van der Kolk, Pelcovitz, et al., 1996) and may be due more to an underlying third variable, trauma, than because they are indeed the same construct or even part of the same construct. For instance, they are both avoidant strategies that imply a feeling of not being "at home" in one's body that may stem from the experience of trauma.

Contrarily, in the sample as a whole, of those who report trauma, somatization did not moderate the effect of trauma on dissociation. That is, in this study having a trauma significantly

predicted greater dissociation scores; however, the level of somatization reported did not significantly impact the previously established relationship between having trauma and greater dissociation. This could have occurred due to the strongly established relationship between trauma and dissociation (Lipschitz et al., 1996; Shearer, 1994; Watson, Chilton, Fairchild, & Whewell, 2006). For instance, it is possible that somatization was not able to significantly contribute to or strengthen the model, thereby failing to show a moderating role.

There were no gender differences in somatization, such that females did not have greater somatization than males in the sample as a whole. Thus, in this study being female did not significantly increase the likelihood of having greater somatization scores. In the empirical literature, it has been overwhelmingly demonstrated that somatization is indeed affected by gender, such that females demonstrate significantly greater somatization than males when investigating both males and females (Klonoff et al., 2000; Punamäki et al., 2005; Shek, 1989; Zink et al., 2009). However, despite the previously mentioned studies appropriate use of male as well as female participants, the empirical literature's current findings that females indeed demonstrate greater somatization than males perpetuate the 19th century view of Janet and Freud that somatization, or historically termed hysteria, is predominately a condition that females are prone to (Breuer et al., 1995; Janet, 1929). Contrary to the majority of empirical research on sexual trauma, the current study used a large number of male and female participants ensuring a more balanced male: female ratio. For instance, in the present study, out of 200 adults 45% were males. In the previously mentioned studies (Klonoff et al., 2000; Punamäki et al., 2005; Shek, 1989; Zink et al., 2009), Klonoff et al. (2000) and Zink et al. (2009) had 29% and 21% males, respectively. While, Shek (1989) did not even state how many males vs. females were participants in their study despite their focus being on sex differences. Of those previously

mentioned, Punamäki et al. (2005) was the only study that had as high a percentage of males as the current study with 47% males. Thus, the present study and its large percentage of male participants helped further our understanding of the presence/absence of somatization in males as well as females. Also, the present study used a predominately traumatized sample which may explain why we found that it is the presence of sexual trauma, i.e., the violation of body self-boundaries, which is the condition in which somatization manifests itself rather than it being associated with an individual's gender.

Finally, in the sample as a whole, somatization did not moderate the effect of gender on dissociation. That is, in this study an individual's gender did not significantly predict greater dissociation scores, which follows logically from the finding that there were no gender differences in somatization, and the fact that somatization and dissociation are correlated. Based on the review of literature and in accordance with the theory that the mechanism that induces dissociative symptoms is the intense emotional arousal of trauma (van der Kolk, 1994), it is logical that gender is not associated with dissociation. Furthermore, the level of somatization reported did not significantly impact the lack of relationship between gender and dissociation.

Also we distinguished between childhood sexual abuse and sexual trauma as an adult and analyzed whether the age of onset of sexual trauma significantly impacted dissociation and somatization. In this sample, earlier age of onset of sexual trauma did not predict significantly greater dissociation scores, nor did it predict significantly greater somatization scores. In further analyses, the relationship of the victim to the perpetrator, specifically distinguishing between family member vs. non-family member perpetrators, was investigated and how this relationship may affect levels of dissociation and somatization. In this sample of individuals who reported a sexual trauma, the experience of having a family member perpetrator did not account for

additional variance in dissociation or somatization scores over and above the experience of having a non-family member perpetrator. Both of these findings were contrary to our belief that due to the degree of taboo and shame of having a family member perpetrator the individual's dissociation and somatization would in turn be greater than if they had a non-family member perpetrator.

There have been parallel findings in recent research that seem to further validate the present study's findings. Sack et al. (2010) performed a study of 240 adult outpatients, male and female. They measured various types of trauma and categorized participants into three groups: sexual trauma, nonsexual trauma, and no trauma. They found that somatization symptoms were significantly more prevalent in individuals in the sexual trauma group compared to individuals in the nonsexual trauma and no trauma groups (Sack et al., 2010). Furthermore, the medical literature has begun to recognize the importance of this critical issue, and acknowledge the impact of childhood trauma. Medical research has begun to demonstrate that "a broad range of adverse childhood events are significant risk factors for most mental health problems" (Read et al., 2012, p. 89) as well as serious medical conditions in adulthood (Felitti et al., 1998). For instance, in the medical literature, Draijer et al. (1999) stated that increased dissociation was primarily associated with overwhelming adverse childhood experiences, such as physical and sexual abuse. Moreover, the severity of the sexual abuse (e.g., degree of invasiveness) was directly related to more prominent dissociative symptoms (Draijer et al., 1999). Furthermore, Easton (2012) asserts that the greater the number of adverse childhood experiences (ACE) as well as the greater the severity of childhood sexual abuse are related to increased interpersonal problems as well as a greater number of stressors in adulthood. Moreover, Felitti et al. (1998) found that the effect of adverse childhood experiences is "strong and cumulative" in its impact

on adult health. They found a dose response relationship between the level of exposure to abuse or other ACE and various risk factors for some of the most common leading causes of death in adults, including: cancer, chronic lung disease, liver disease, skeletal fractures, and ischemic heart disease (Felitti et al., 1998). Thus, continued study of the effects of trauma in childhood and across the lifespan on an individual's mental as well as physical health is vital if we want to continue improving the quality of life for this surprisingly and sadly large population of individuals who have suffered a trauma in their life, who may continue to suffer with a variety of ailments long after their trauma exposure has ceased.

There were some limitations to the present study. When investigating dissociation and trauma, using a retrospective self-report measure is problematic due to the very nature of dissociation and the possible memory loss associated with the occurrence of trauma. For instance, Murray, Ehlers, and Mayou (2002) discussed problems with incomplete processing that occurs during a trauma and may lead to "deficits" in the sequence, organization, and completeness of the traumatic memory ranging from uncertainty about chronology of the event to complete amnesia for the traumatic event. van der Kolk and Fisler (1995) also described a difference in the information processing of traumatic memory. For instance, ordinary information may be "transcribed into personal narratives" (p.13) while traumatic memories may be "imprinted as sensations" (p.13).

Another limitation was not analyzing the various components of the other trauma variable. That is, we did not investigate the other subtypes of trauma (e.g., physical abuse, etc.) for their individual effects and how they might compare with sexual trauma. Additionally, the lack of information regarding various other dimensions of trauma (e.g., frequency, severity, developmental period, number of different perpetrators, etc.) that have been shown to affect

dissociation was a limitation. Also, not assessing substance use and abuse was a limitation as many individuals, especially males, who have experienced trauma may use substances as an avoidance strategy or coping mechanism instead of relying on dissociation and/or somatization (Briere, 2006). Also, not assessing for an individual's history of somatic or psychotropic medication usage, or medical history in general, was another limitation of the current study. In future research, assessing for these important variables and how they may differentially affect an individual's dissociation and/or somatization would be extremely beneficial.

An additional limitation was that individuals who seek treatment may be more affected and/or disturbed by trauma than those who are not seeking treatment. Their traumatic memories may be more salient or their symptoms may be more distressing causing them to seek treatment, especially with regard to somatization. For instance, if an individual has been seeking medical treatment with no avail, the medical doctor may refer him or her for psychological treatment, or the individual may seek it on his or her own out of desperation looking for clarity or a resolution to their distressing bodily symptoms. Therefore, the findings of the current study may be magnified due to the fact that all the participants were seeking mental health services at the time of assessment. In the future it is important to use a community as well as clinical sample in order to have a greater range of scores.

A final limitation of the present study was the limited amount of demographic information obtained from the psychological clinic's intake packet due to participants' lack of responses to some or all of the demographic questions. For instance, many participants failed to answer questions about their ethnicity, race, religious beliefs, household income, education, and marital status. Obviously, these questions are voluntary and perhaps of a sensitive nature; thus, an individual cannot be required to provide responses in order to receive psychological services.

Therefore, due to the limited amount of demographic information available, it may be difficult to generalize the results to various populations based on race, ethnicity, socioeconomic status, etc.

It is important that in future research there be an emphasis on having larger male samples in order to further disconfirm that sexual trauma, somatization, and dissociation are female ailments linked back to Freud's days of hysterical female patients. Also, focusing more on sexual trauma across the lifespan rather than exclusively investigating childhood sexual abuse would be an important future direction for the sexual trauma, somatization, and dissociation literature. Also, since medical research has begun to acknowledge the strong negative impact of trauma, perhaps in the future, research regarding trauma and adverse childhood experiences can be shared and better distributed among mental health as well as medical professionals alike.

In conclusion, results of this study may inform interventions as currently somatization continues to be "beyond the reach of psychoanalytic treatments" (Bucci, 1997, p. 170); while also eluding medical professionals as individuals seek medical treatment with no avail. Thus, we hope through this study that mental health providers, as well as various other medical professionals, may be made more aware of the strong and unique impact that trauma, and more specifically sexual trauma across the lifespan, has on an individual's mental as well as physical health. It is our hope that, especially when faced with a perplexing symptom that remains unexplained, the clinician will have the insight to briefly screen for a history of trauma and be equipped to refer the individual for appropriate services whether they be medical or psychological.

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Appendix

Table 1: Demographics and Dissociation/Somatization Scores

	Total Sample (<i>N</i> = 245)	Final Study Sample (<i>N</i> = 200)		Trauma (in general) (<i>N</i> = 168)	Other Trauma (<i>n</i> = 166)	Sexual Trauma (<i>n</i> = 49)
Demographics	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>t</i>	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Age	29.47 (10.95)	28.94 (10.61)	1.59	29.48 (10.74)	29.57 (10.78)	31.22 (10.35)
Household Income	\$32,159 (\$31,670)	\$33,438 (\$31,908)	0.12	\$31,388 (\$28,998)	\$31,775 (\$29,179)	\$33,013 (\$30,630)
Persons In Household	3 (1)	3 (1)	-1.20	3 (2)	3 (2)	3 (2)
Dissociation Scores	-	11.67 (10.74)		13.06 (11.08)	13.19 (11.08)	14.99 (12.33)
Dissociation Scores Range	-	0.00 – 63.21		0.00 – 63.21	0.00 – 63.21	1.07 – 51.07
Somatization Scores	-	54.92 (13.15)		56.85 (12.63)	56.90 (12.70)	61.16 (13.20)
Somatization Scores Range	-	0.00 – 96.00		34.00 – 96.00	34.00 – 96.00	35.00 – 96.00
	%	%	χ^2	%	%	%
Gender, female	54.3	54.5	.02	55.4	54.8	77.6
High School Diploma/ GED	89.8	91.5	9.32*	91.7	91.6	89.8
Some College	79.2	81.5	3.86	81.0	80.7	81.6
Employed	42.0	44.0	2.24	45.2	45.2	44.9
Married	24.5	25.5	6.34*	27.4	27.7	38.8
Minority Status	8.6	9.5	27.54***	9.5	9.6	10.2

Note. Not all participants in each group responded to all demographic questions.

p* < .05; *p* < .01; ****p* < .001.

Table 2: Correlations between Dissociation, Somatization, and Demographics, $N = 200$

	Dissociation	Somatization
Dissociation	1.00	.43***
Somatization	.43***	1.00
Trauma	.30***	.34***
Other Trauma	.31***	.33***
Sexual Trauma	.18*	.27***
Gender	.06	-.05
Age	.04	.07
Household Income	.17	-.07
Persons In Household	.10	.06
High School Diploma/GED	.00	-.15*
Some College	-.23***	-.34***
Employed	-.22**	-.04
Married	.05	.14
Minority Status	-.05	.05

* $p < .05$; ** $p < .01$; *** $p < .001$, two-tailed.

Table 3: Hierarchical Multiple Regression Analyses Investigating the Effect of Sexual Trauma and Other Trauma on Dissociation, $N = 200$

Step	Independent Variables	ΔR^2	β	B	t	R^2 (adj.)	F	df
1	Regression	.09		4.37	2.41*	.09 (.08)	19.20***	1, 198
	Trauma (in general)		.30	8.69	4.38***			
2	Regression	.01		4.37	2.41*	.10 (.09)	10.77***	2, 197
	Trauma (in general)		-.07	-2.05	0.28			
	Other Trauma		.38	10.87	1.49			
3	Regression	.02		4.37	2.43*	.11 (.10)	8.42***	3, 196
	Trauma (in general)		-.18	-5.31	0.70			
	Other Trauma		.46	13.20	1.80			
	Sexual Trauma		.13	3.26	1.86			

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

Table 4: Hierarchical Multiple Regression Analyses Demonstrating the Effect of Sexual Trauma and Other Trauma on Somatization, $N = 200$

Step	Independent Variables	ΔR^2	β	B	t	R^2 (adj.)	F	df
1	Regression	.11		44.78	20.42***	.11 (.11)	25.44***	1, 198
	Trauma (in general)		.34	12.07	5.04***			
2	Regression	.001		44.78	20.38***	.12 (.11)	12.77***	2, 197
	Trauma (in general)		.23	8.22	0.91			
	Other Trauma		.11	3.90	0.44			
3	Regression	.04		44.78	20.81***	.16 (.14)	12.01***	3, 196
	Trauma (in general)		.05	1.78	0.20			
	Other Trauma		.24	8.51	0.97			
	Sexual Trauma		.21	6.44	3.07**			

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

Table 5: Simultaneous Multiple Regression Analyses Investigating the Moderating Effect of Somatization on Trauma and Dissociation, $N = 200$

Independent Variables	β	B	t	R^2 (adj.)	F	df
Regression		5.11	2.22*	.22 (.21)	18.89***	3, 196
Trauma	.25	7.30	3.02**			
Somatization	.09	0.07	0.47			
Trauma*Somatization	.29	0.27	1.63			

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

Table 6: Simultaneous Multiple Regression Analyses Investigating the Moderating Effect of Somatization on Gender and Dissociation, $N = 200$

Independent Variables	β	B	t	R^2 (adj.)	F	df
Regression		10.79	10.59***	.20 (.18)	15.87***	3, 196
Gender	.08	1.66	1.20			
Somatization	.40	0.32	4.25***			
Gender*Somatization	.06	0.06	0.59			

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

Table 7: Linear Regression Analysis Investigating the Relationship between Age of Onset of Sexual Trauma and Dissociation, $n = 42$

Independent Variable	β	B	t	R^2 (adj.)	F	df
Regression		15.95	6.88***	.00 (-.02)	0.02	1, 40
Age of Onset of Sexual Trauma	-.02	-0.67	-0.14			

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

Table 8: Linear Regression Analysis Investigating the Relationship between Age of Onset of Sexual Trauma and Somatization, $n = 42$

Independent Variable	β	B	t	R^2 (adj.)	F	df
Regression		62.66	27.21***	.01 (-.01)	0.48	1, 40
Age of Onset of Sexual Trauma	-.11	-3.26	-0.69			

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

Table 9: Hierarchical Multiple Regression Analyses Investigating the Effect of Relationship of Perpetrator (Family vs. Non-family Member) on Dissociation, $n = 49$

Step	Independent Variables	ΔR^2	β	B	t	R^2 (adj.)	F	df
1	Regression	.08		8.93	2.59*	.08 (.06)	4.08*	1, 47
	Non-family Member Perpetrator		.28	8.02	2.02*			
2	Regression	.06		-1.35	-0.21	.14 (.11)	3.82*	2, 46
	Non-family Member Perpetrator		.60	16.91	2.73**			
	Family Member Perpetrator		.40	10.28	1.83			

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

Table 10: Hierarchical Multiple Regression Analyses Investigating the Effect of Relationship of Perpetrator (Family vs. Non-family Member) on Somatization, $n = 49$

Step	Independent Variables	ΔR^2	β	B	t	R^2 (adj.)	F	df
1	Regression	.00		61.17	15.89***	.00 (-.02)	0.00	1, 47
	Non-family Member Perpetrator		.00	-0.01	-0.001			
2	Regression	.01		65.98	8.78***	.01 (-.03)	0.28	2, 46
	Non-family Member Perpetrator		-.14	-4.17	-0.58			
	Family Member Perpetrator		-.18	-4.81	-0.75			

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

Vita

Amineh Abbas was born and raised in Knoxville, TN. She graduated *magna cum laude* from Louisiana State University in 2006 with her Bachelor of Science in Psychology and a minor in Anthropology. In Louisiana, she worked in two psychological labs, one clinical and one cognitive. This experience, along with working in the LSU Psychological Services Center, helped solidify her future career goals of being a Clinical Psychologist. She also served as Editor-in Chief of the *delta undergraduate journal*, LSU's literary journal. In 2007, she enrolled at the University of Tennessee in Knoxville. While at the University of Tennessee, she was the Time Series Research Co-Coordinator for three years. She was a graduate student therapist at the UT Psychological Clinic and a Clinical Psychologist Associate at Cherokee Health Systems. She was also a student representative of the Appalachian Psychoanalytic Society and continues to be active in the organization. Amineh received her Master of Arts in Psychology in 2011 from the University of Tennessee and is currently on internship at the Southern Louisiana Internship Consortium in Baton Rouge, LA, at the completion of which Amineh will have met all requirements to graduate with her doctorate degree in Clinical Psychology at the University of Tennessee in Knoxville.