The Role of Attachment in the Relation of Trauma to Posttraumatic Stress and Borderline Personality Disorder

by

Dawn A. Potter

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Abstract

Interpersonal trauma is associated with posttraumatic stress disorder (PTSD), borderline personality disorder (BPD) and disorders of extreme stress not otherwise specified (DESNOS). Attachment style may be a mediator or moderator of the impact of trauma on PTSD symptoms. BPD has been described as a disorder of attachment. Classen, Pain, Field and Woods (2006) proposed a new model, Posttraumatic Personality Disorder (PTPD) which posits that trauma predicts DESNOS symptoms while attachment predicts BPD symptoms. To determine the role of attachment in relation to these disorders, main effects of trauma, and main, mediation and moderation effects of attachment on symptoms of DESNOS and BPD were tested in a sample of 238 female university students. Results supported a mediation model. Trauma was the strongest predictor of DESNOS and attachment anxiety was the strongest predictor of BPD, consistent with the PTPD model. Trauma therapies that address attachment problems are recommended.

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The Role of Attachment in the Relation of Trauma to Posttraumatic Stress and Borderline Personality Disorder

The rates of violence against women and children are staggering. A nationally representative survey of 8000 women in the USA found that before the age of 18, 40% of women experienced at least one instance of violence perpetrated by a caregiver and 9% experienced sexual abuse (Thompson, Arias, Basile, & Desai, 2002). As adults, 31% of women were physically victimized and 10% were sexually victimized (Thompson et al., 2002). In addition, the abuse of women and children has consequences for victims that reach far beyond temporary physical or emotional injury. Survivors of this type of violence may have their lives forever altered by the aftereffects of their traumatic experiences. The current research is designed to examine the role of attachment in the relation of interpersonal trauma[1] to its long-term psychological impact.

The Aftereffects of Trauma

Survivors of violence against women and children suffer from numerous aftereffects, including sleep difficulties, revictimization, increased suicidality, substance abuse, risky sexual behaviour, eating disorders, altered interpersonal styles, increased homelessness, altered internal working models of the self and others, depression, posttraumatic stress disorder (PTSD) and borderline personality disorder (BPD) (Golding, 1999; Kearney, Weschler, Kaur, & Lemos-Miller, 2010; Kendall-Tackett, 2002; Murray, 1993; Roche, Runtz, & Hunter, 1999; Rosewater, 1985; Watson, Chilton, Fairchild, & Whewell, 2006). Of particular interest here are the diagnoses of PTSD and

[1] The term interpersonal trauma refers to trauma that is deliberately perpetrated on a particular victim by another person, including childhood physical and sexual abuse, childhood neglect and emotional abuse, intimate partner violence, and sexual assault.

BPD.

Posttraumatic stress disorder. PTSD is an anxiety disorder that, according to the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)*, is "characterized by the reexperiencing of an extremely traumatic event accompanied by symptoms of increased arousal and by avoidance of stimuli associated with the trauma" (American Psychiatric Association [APA], 2000, p. 429). The symptoms associated with reexperiencing (e.g., recurrent distressing recollections or dreams of the event, intense distress or physiological reactivity to cues related to the event, and acting or feeling like the event is happening again), avoidance (e.g., avoiding thoughts, feelings, activities, places and people that remind one of the trauma, having a restricted range of affect, and feeling detached or estranged from others) and hyperarousal (e.g., sleep difficulties, hypervigilance, irritability or anger problems and difficulty concentrating) must last for at least one month and cause clinically significant distress or impairment in social, occupational or other important areas of functioning (APA, 2000).

PTSD is a relatively common aftereffect of violence against women and children. In their review of nine studies, Rodriguez, Vande Kemp, and Foy (1998) found that rates of PTSD in children who had experienced sexual abuse ranged from 20.7 to 73.5%. After excluding the two studies that used nonstandard measures of PTSD, the rates were between 40 and 50%. Based on seven studies, Rodriguez et al. (1998) reported PTSD rates following childhood physical abuse ranging from 6.9 to 33.3%. In a synthesis of 45 studies, Kendall-Tackett, Meyer Williams, and Finkelhor (1993) reported that on average, 32% of childhood sexual abuse survivors have PTSD.

Comparable rates of PTSD have been observed following experiences of partner

abuse. In a meta-analysis of 11 studies of battered women, Golding (1999) found that 31.0 to 84.4% met the criteria for PTSD.

Other research indicates that posttraumatic symptoms are more severe following interpersonal traumas than they are following other traumas. In a sample of 440 college students, Vrana and Lauterbach (1994) found that the highest levels of PTSD symptoms were associated with experiences of childhood abuse, rape, abuse in adulthood and events that participants described as too traumatic to discuss. In contrast, less severe PTSD symptoms were associated with traumatic events such as the death of a significant other, a serious industrial or farm accident, a life threatening situation, combat, a large fire/explosion, a violent crime, a natural disaster, and witnessing mutilation, serious injury or violent death. Although some of these traumas (e.g., combat, violent crime) could potentially be considered interpersonal, they do not have the same quality of being singled out, often by a known perpetrator, as traumas like rape and child abuse do.

Borderline personality disorder. According to the APA (2000), BPD is characterized by "a pattern of instability in interpersonal relationships, self-image, and affects, and marked impulsivity" (p. 685). To be diagnosed with BPD one must satisfy at least 5 of the following criteria: frantic efforts to avoid abandonment, unstable and intense relationships with alternating extremes of idealization and devaluation, unstable sense of self, self-damaging impulsivity in at least two areas, recurrent suicidal threats, suicidal behaviour or self-injury, affective instability, chronic feelings of emptiness, anger problems, and transient stress-related paranoid ideation or transient severe dissociative symptoms (APA, 2000). Although those diagnosed with BPD make up only 2% of the population (APA, 2000), they comprise 20% of US psychiatric hospitalizations

(National Institute of Mental Health, 2001) and 10% of psychiatric outpatients (APA, 2000). About 75% of those diagnosed with BPD are female (APA, 2000).

Under associated features of BPD, the *DSM-IV-TR* (APA, 2000) notes that childhood histories of physical abuse, sexual abuse, neglect, hostile conflict and early loss of, or separation from a parent are common in those with BPD. Consistent with this Fossatti, Madeddu, and Maffei's (1999) meta-analysis of 21studies revealed a fair to moderate pooled effect size of .28 for the relation between childhood sexual abuse and BPD. Similarly, Watson et al., (2006) found that 71% of their sample of 139 psychiatric patients with BPD (75.5% females) had experienced emotional abuse and emotional neglect at levels considered moderate to extreme based on normative data. In the same sample, 39% reported moderate to extreme experiences of physical abuse, 43% reported moderate to extreme experiences of sexual abuse and 43% reported moderate to extreme experiences of physical neglect. In view of such findings, researchers and clinicians have suggested that interpersonal trauma plays a key role in the development of BPD (e.g., Herman, 1992b; Herman, Perry, & van der Kolk, 1989; Watson et al., 2006).

Disorders of Extreme Stress Not Otherwise Specified. A number of researchers have argued that PTSD fails to capture the broad range of symptoms experienced in the wake of prolonged interpersonal trauma (Herman, 1992a, b; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). In particular, studies of treatment seeking individuals with maltreatment histories have found that the diagnoses of PTSD and BPD often overlap (Watson, et al., 2006). In one such study, Zanarini et al., (1998) found that 56% of 379 patients diagnosed with BPD also met the criteria for PTSD. Of the females with BPD (n = 296), it was found that 60.8% had a diagnosis of PTSD, which

was significantly greater than the 30% rate of PTSD observed in those with other personality disorders (n = 70), demonstrating the specificity of the association between PTSD and BPD. Similarly, Ford and Fournier (2007) found that 95% of their sample of 35 low income women with PTSD reported problems characteristic of BPD, specifically severe difficulties regulating emotions and impulses, as well as chaotic and conflicted relationships. Studies of nonclinical groups have also found an overlap in the symptoms of PTSD and BPD. In a sample of 325 female university students, Gershuny, Najavits, Wood, and Heppner (2004) found a moderate correlation of .37 between symptoms of BPD and PTSD. In view of the common comorbidity of BPD with PTSD, and the association of both with interpersonal trauma, it seems likely that a combination of the symptoms of these disorders represents a common psychological profile of survivors of interpersonal trauma. Nevertheless, the moderate correlation between measures of BPD and PTSD also suggests that these disorders do represent somewhat distinct profiles.

In view of the shortcomings of PTSD and BPD to fully account for the psychological impact of interpersonal trauma, a new diagnostic entity referred to as complex PTSD (Herman, 1992a, 1992b) or Disorders of Extreme Stress Not Otherwise Specified (DESNOS; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997) was proposed. The *DSM-IV* Posttraumatic Stress Disorder Field Trial was conducted to determine whether DESNOS should be included in the *DSM-IV* (APA, 1994) as distinct diagnostic entity (Roth et al., 1997). In this trial, seven diagnostic criteria based on Herman's (1992a, b) conceptualization of DESNOS were considered: alterations in the regulation of affect and impulses, alterations in attention or consciousness, alterations in self-perceptions, alterations in perceptions of the perpetrator, alterations in relationships

with others, somatization, and alterations in systems of meaning (Roth et al., 1997).

The field trial included a clinical sample of 400 treatment seeking men and women recruited from five clinical sites across the United States and a community sample of 128 trauma-exposed people randomly selected from two US cities (Roth et al., 1997; van der Kolk et al., 2005). Data revealed that DESNOS typically co-occurred with PTSD (van der Kolk et al., 2005). Indeed, of those who met the criteria for DESNOS, only 6.2% of the clinical sample and 4% of the community sample did not meet the criteria for PTSD (van der Kolk et al., 2005).

Other analyses of the PTSD field trial data revealed that the prevalence of DESNOS was especially high among people who had experienced physical or sexual abuse. Using the data of the 234 participants (80.8% female) who reported experiencing physical and/or sexual abuse, but not combat or the murder of a close friend or family member, Roth et al. (1997) found that 50% met the criteria for lifetime DESNOS. Relative to physical abuse, a history of sexual abuse was more frequently associated with the diagnosis of DESNOS. Specifically, while 76% of the participants who had experienced sexual abuse met the criteria for DESNOS, only 53% of those who experienced only physical abuse did so (Roth et al., 1997). In addition, the duration of sexual or physical abuse was also a significant predictor of DESNOS (Roth et al., 1997).

To compare the relations of interpersonal and noninterpersonal trauma with DESNOS, van der Kolk et al. (2005) divided the field trial participants into 3 groups: early onset (interpersonal trauma before age 14), late onset (interpersonal trauma only after age 14), and disaster (victims of natural disasters not reporting histories of interpersonal trauma). In the early onset group, the comorbidity of lifetime PTSD and

DESNOS was 61%, a rate significantly greater than the prevalence of 16% for PTSD alone. In the late onset group, the comorbidity of lifetime PTSD and DESNOS was 33%, a rate that did not differ from the PTSD only rate of 26%. Finally, only 8% of the disaster group had comorbid lifetime PTSD and DESNOS, which did not differ from the PTSD rate of 15%. Hence, people who were younger at the time of interpersonal trauma were more likely to experience comorbid DESNOS and PTSD than PTSD alone, while people who were older, as well as those who experienced noninterpersonal trauma, were just as likely to experience comorbid DESNOS and PTSD as PTSD alone.

Based on the PTSD field trial results, van der Kolk et al., (2005) concluded that prolonged interpersonal trauma with an early age of onset affects psychological functioning beyond that captured by the diagnosis of PTSD. In view of this, the cluster of symptoms referred to as complex PTSD or DESNOS was included in the *DSM-IV* as an associated feature of PTSD (Roth et al., 1997). The *DSM-IV-TR* currently states:

> The following associated constellation of symptoms may occur and are more commonly seen in association with an interpersonal stressor (e.g., childhood sexual or physical abuse, domestic battering): impaired affect modulation; self-destructive and impulsive behaviour; dissociative symptoms; somatic complaints; feelings of ineffectiveness, shame, despair, or hopelessness; feeling permanently damaged; a loss of previously sustained beliefs; hostility; social withdrawal; feeling constantly threatened; impaired relationships with others; or a change from the individual's previous personality characteristics (APA, 2000, p. 465).

The findings of other research are largely consistent with the findings of the *DSM* field trial. For example, Zlotnick et al., (1996) found differences in DESNOS symptoms (i.e., somatization, revictimization, dissociative experiences, hostility, anxiety, alexithymia, and social adjustment) between female psychiatric patients with (n = 74) and without (n = 34) histories of sexual abuse. Further, in a logistic regression analysis these symptoms correctly classified 78% of the cases as having been sexually abused or not.

DESNOS has also been found to have a high rate of comorbidity with BPD in survivors of childhood sexual abuse prior to age 12. In a sample of female psychiatric out-patients, for example, McLean and Gallop (2003) found that the criteria for both DESNOS and BPD were satisfied by 94.7% of those who had experienced sexual abuse before age 12 (n = 38) but none of those who were abused after age 12 (n = 27).

In sum, the research to date suggests that DESNOS is associated with various types of interpersonal trauma, especially sexual abuse and other forms of family violence (McLean & Gallop, 2003; Roth et al., 1997; van der Kolk et al., 2005; Zlotnick et al., 1996). As a diagnosis for trauma survivors struggling with serious psychological challenges in the aftermath of violence, DESNOS expands upon the diagnosis of PTSD, which has been found to be inadequate for survivors of chronic interpersonal trauma, and accounts for the relational and affective disturbances so common to trauma survivors.

Attachment Theory

Given the particularly strong associations between early interpersonal trauma and BPD, PTSD and DESNOS, attachment theory may provide a model for understanding the aetiology of and/or risk factors for these disorders. Attachment theory is a framework for understanding how children form working models of the self and others through their

interactions with their primary caregivers (Bowlby, 1973). These working models persist into adulthood, influencing how people approach adult relationships. Since most interpersonal traumas occur in the context of relationships, attachment theory should be able to explain individual differences in aftereffects of trauma.

A child's confidence in the availability of an attachment figure for support in stressful situations is theoretically related to the perceived responsiveness of the attachment figure and to whether or not the child regards herself or himself as deserving a supportive response (Bowlby, 1973). Essentially, children whose caregivers are responsive to their bids for attention learn that they can depend on their caregivers for support and that they deserve such care. Babies whose mothers are responsive to their crying tend to cry less in future (Ainsworth, 1985).

Differences in infant attachment styles can be assessed. Mary Ainsworth's "strange situation," a 20 minute laboratory assessment which entails the mother leaving the infant alone for a period of time and then returning to the room, has been used to reliably characterize infants as having secure or anxious (avoidant or ambivalent) attachment (Ainsworth, Blehar, Waters, & Wall, 1978). In the laboratory, securely attached infants, who usually experienced responsive parenting at home, were found to protest the mother's absence and seek reunion with her upon her return (Aisnworth, 1985). Anxiously attached infants, who had often experienced rejection when seeking comfort at home, were found not to protest and to avoid the mother upon her return (Ainsworth, 1985). Consistent with Ainsworth's findings, in a longitudinal study, Egeland and Farber (1984) assessed the attachment styles of 189 infants to their mothers at 12 and 18 months old. They also found that mothers with securely attached infants

showed greater cooperation and sensitivity than mothers of insecurely attached infants.

Although relatively stable, attachment styles are malleable in response to changes in the environment. Crittenden (1985) had 24 low income mothers and their infants participate in an intervention designed to improve their parenting. When parenting improved, in 62.5% of cases the baby also became more cooperative. Further, when different interaction patterns were displayed by a mother and another familiar adult (e.g., one was neglecting and one was sensitive), the infants varied their attachment behaviours (e.g., being difficult or cooperative). Together, these findings suggest that attachment behaviour is not entirely related to an infant's temperament; given the right circumstances, maltreated/difficult infants can display cooperative behaviour.

Main (1990) described infant attachment behaviour in terms of unconscious primary (secure) and secondary (insecure) attachment systems. Primary attachment strategies represent "secure" attachment behaviours, such as moving closer to an attachment figure under stress or protesting when a parent leaves, which are effective when a parent is responsive. Secondary (insecure) attachment strategies, in contrast, involve the suppression of primary attachment behaviours and may develop as adaptive responses to parenting strategies that discourage secure attachment. For example, to avoid placing more stress on an overtaxed parent, a distressed infant may suppress attention-seeking behaviour and appear calm instead. According to Main (1990), however, secondary attachment strategies involve alterations in cognitive, perceptual and behavioural processes that ultimately detract from psychological well-being.

Although Bowlby (1973, 1979) focused on attachment in children, he asserted that attachment behaviour characterizes people from the cradle to the grave. Adult

attachment styles can be conceptualized in a number of ways, one of which is measured by evaluating adults' descriptions of their childhood experiences. Crowell & Feldman (1991) used the Adult Attachment Interview, developed by George, Kaplan, and Main (1984; as cited in Crowell & Feldman, 1991) to assess the attachment styles of 45 mothers of children between ages two and four. Mothers were classified as secure, preoccupied or dismissing based on their descriptions of childhood relationships with caregivers. Secure mothers valued relationships and could discuss early experiences freely. Dismissing mothers remembered rejection and punishment, and minimized the importance of attachments. Preoccupied mothers remembered inconsistent and role reversing parenting and continued to have conflicting feelings about their caregivers. Crowell and Feldman (1991) found that securely attached mothers were more affectionate with their children and were better able to interpret their children's emotional states.

While the above model of attachment is typically used when evaluating parent-child relationships, another model of adult attachment extends attachment processes to romantic relationships. Hazan and Shaver (1987) conceptualized romantic love as an attachment process related to, but distinct from, infant attachment processes. Hazan and Shaver (1987) based their adult attachment styles on the three styles of infant attachment first described by Ainsworth et al. (1978), namely secure, anxious/ambivalent and anxious/avoidant. They proposed that these attachment styles are similar to those of infants in that they are based on mental models of the self and of others and are shaped by attachment styles developed throughout childhood.

Building on this theorizing, Bartholomew and Horowitz (1991) developed a four category model of adult attachment based on the interaction between people's views of

themselves as positive or negative (i.e., worthy or unworthy of care) and their views of others as positive or negative (i.e., available and trustworthy vs. unreliable and rejecting). In this model, depicted in Table 1, secure attachment is defined by a positive model of both the self and others. It is characterized by low levels of dependency on others for self-worth and low levels of avoidance of intimacy. Preoccupied attachment is defined by a negative model of the self and a positive model of others. It is characterized by high dependency and low avoidance. Dismissive attachment consists of a positive model of the self and a negative model of others. It is characterized by low dependency and high avoidance. Finally, fearful attachment consists of negative models of both the self and others. It is characterized by both high dependency and avoidance. The apparent incompatibility of high levels of dependency and avoidance is reconciled by fearfully attached people's simultaneous desire for and fear of intimacy (Bartholomew & Horowitz, 1991). The dimension of dependency (or views of the self) is sometimes also referred to, and measured as, attachment anxiety (Brennan, Clark, & Shaver, 1998). Rather than categorizing people into distinct styles, attachment anxiety and attachment avoidance can also be measured as theoretically orthogonal continuous indicators of attachment orientation (Brennan et al., 1998).

Table 1 displays the percentage of those having each attachment style in two samples of university students (*N*s = 77 and 69), as reported by Bartholomew and Horowitz (1991). As indicated there, about half of these university students had secure attachment, and the remaining students were almost evenly distributed among the three types of insecure attachment.

Table 1.

Attachment Styles of University Students (Bartholomew &Horowitz, 1991)

	Model of self (dependence/anxiety)	
Model of other (avoidance)	Positive (Low dependence)	Negative (High dependence)
Positive (low avoidance)	Secure 47 – 57%	Preoccupied 10 – 14%
Negative (high avoidance)	Dismissing 18%	Fearful 15-21%

This model of attachment differs from the type of attachment that is assessed in the Adult Attachment Interview because it is not assessed based on qualitative descriptions of experiences with parents. It is assessed based on ratings of how one typically behaves in relationships. Despite differences in assessment, researchers have established that Bartholomew and Horowitz's (1991) attachment styles are indeed related to experiences with caregivers. In a questionnaire study of 132 female university students, for example, Eckart (1996) found that secure attachment was associated with more paternal care (r = .22) and less paternal overprotection (r = -.28) while preoccupied attachment was associated with less maternal care (r = -.29) and more maternal overprotection (r = .21). Dismissive attachment, in contrast, was associated with more total family violence (r = .23) and fearful attachment was related to less maternal care (r = -.19) and more paternal overprotection (r = .23).

Overall, then, an infant's attachment style is shaped by the caregiver's responsiveness (Ainsworth, 1985; Bowlby, 1973) and insecure attachment styles, though potentially adaptive, can detract from psychological well-being (Main, 1990). Although

infants' attachment styles are malleable (Crittenden, 1985), adults' attachment styles are somewhat consistent with their childhood attachment experiences (Eckart, 1996). Adults' attachment styles are important in that they have enduring effects on their intimate relationships (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987).

Trauma, Attachment, PTSD and BPD

The relationship between abuse, attachment and psychological well-being is complex. Although some researchers have conceptualized attachment as moderating the effects of trauma on well-being, attachment has most commonly been understood as mediating the relation between trauma and its aftereffects, such as PTSD and BPD. Other researchers, however, regard the observed relations between abuse and attachment as an artefact of the family dysfunction that often exists in families where child abuse occurs and consider attachment to be independent of trauma and its aftereffects.

Attachment as a moderator. There is some evidence that attachment may moderate the effects of trauma on trauma-related aftereffects by increasing vulnerability to developing clinically significant trauma-related symptoms such as those of BPD and PTSD. In one study, for example, Declercq and Willemsen (2006) examined whether attachment style moderated the relation between experiences of work-related critical incidents, such as witnessing a suicide, receiving death threats, or dealing with consequences of serious traffic accidents, and the PTSD scores of people ($N = 544$; 16% female) working for a Belgian security company and the Belgian Red Cross. Consistent with the hypothesized moderating role of attachment, fearful and preoccupied attachment styles (*rho*s = .25 and .18, respectively) were associated with somewhat higher posttraumatic stress scores, while secure attachment (*rho* = -.10) was associated with

slightly lower posttraumatic stress scores. When attachment was defined in terms of the dimensions of anxiety and avoidance, only anxiety (*rho* = .25) was associated with posttraumatic stress scores. Importantly, a logistic regression analysis indicated that an increase of one point on the preoccupied or fearful attachment measures increased the odds of clinical levels of PTSD by 25%. Hence attachment styles characterized by high levels of anxiety (i.e., fearful or preoccupied), but not avoidance without anxiety (i.e., dismissing), appear to increase the risk of PTSD following trauma.

In a study of 101 heterosexual cohabitating couples, Scott and Babcock (2010) also found that the relationship between intimate partner violence and PTSD was stronger among those with higher attachment anxiety scores and those with higher dependency in relationships scores.[2] In contrast, however, Elwood and Williams (2007) failed to document a moderating role for attachment. In their study, university students ($N = 287$; 76% female) who reported at least one interpersonal trauma had higher attachment anxiety scores than those who reported no interpersonal traumas and both higher avoidance and higher anxiety scores were associated with higher PTSD scores. However, the interactions between the attachment and trauma scores did not predict PTSD. Rather than providing evidence for attachment as a moderator, these findings suggest that attachment acts as a mediator.

Attachment as a mediator. Consistent with the possibility that attachment mediates the relation between trauma and its aftereffects, numerous studies have documented the negative effects of trauma on attachment. In particular, such research

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[2] Two dimensional models of attachment usually consider attachment dependency and attachment anxiety as comprising the same, single construct. Consistent with this conceptualization, Scott and Babcock's (2010) measures of attachment dependency and attachment anxiety had the same relations to intimate partner violence.

has found that both fearful and preoccupied attachment styles (characterized by a negative model of self and attachment anxiety) are notably more common in both nonclinical and clinical samples of people who have experienced interpersonal trauma. For example, in a study of 75 women abused by their partners 53% had a preoccupied attachment style, 35% had a fearful attachment style, 7% had a secure attachment style, and 5% had a dismissing attachment style (Henderson, Bartholomew, & Dutton, 1997). Other studies have documented comparable effects of other interpersonal traumas on attachment (e.g., Allen, Coyne, & Huntoon, 1998; Henderson, Bartholomew, Trinke, & Kwong, 2005).

Also consistent with the hypothesized mediating role of attachment are the observed relations between attachment and various psychological difficulties associated with trauma. In a sample of 42 women and 24 men with histories of childhood physical and/or sexual abuse, Muller and Lemieux (2000) found positive correlations (rs = .33 to .61) between a negative view of self and symptoms of depression, anxiety, lowered self-esteem, PTSD, internalizing problems and externalizing problems. They also determined that a negative view of self was more strongly related to each of these symptoms than was a negative view of others. To account for these findings, Muller and Lemieux (2000) suggested that a negative view of others may not adversely affect psychological functioning because dismissing the importance of relationships may increase self-reliance and bolster self-worth. The authors did not comment on how this explanation would apply to those with fearful attachment, whose self-worth would be low by definition.

More direct evidence that attachment mediates the relation between trauma and its aftereffects comes from Twaite and Rodriguez-Srednicki (2004), who examined the

relation of 284 New Yorkers' experiences of trauma (including childhood physical and sexual abuse and exposure to the September 11 terrorist attack on the World Trade Centre) to their attachment and trauma-related symptoms (specifically dissociation and PTSD scores). They found that those who had experienced childhood physical or sexual abuse had lower secure attachment, higher dissociation and higher PTSD scores when compared with those without histories of physical or sexual abuse, respectively. They also found that less secure attachment was associated with somewhat more severe PTSD ($r = -.21$). In a hierarchical multiple regression analysis, they found that childhood sexual abuse, but not childhood physical abuse, accounted for 5.3% of the variability in PTSD scores. When entered on the next step, attachment and dissociation, but not the nature of exposure to the terrorist attack accounted for an additional 7.9% of the variance in PTSD. Of relevance here, the effect of childhood sexual abuse was rendered nonsignificant on the second step, suggesting that attachment mediated the relation between childhood sexual abuse and PTSD scores.

In perhaps the most comprehensive and systematic study to date, Roche, et al. (1999) collected data from 307 female university students to test whether attachment mediated the relation between childhood sexual abuse and the 10 trauma-related aftereffects assessed by the Trauma Symptom Inventory (TSI; Briere, 1995). Of these women, 27.6% reported childhood sexual abuse. A profile analysis indicated that those who experienced no abuse, intrafamilial abuse (10.1%) or extrafamilial abuse (17.5%) had different TSI scores. Specifically, relative to women who had not been abused, those who had scored higher on the defensive avoidance, impaired self-reference and intrusive experiences scales and, relative to those who experienced extrafamilial abuse, those who

experienced intrafamilial abuse had higher scores on the depression, intrusive experiences, impaired self-reference, anxious arousal and defensive avoidance scales. Hence, sexual abuse had more profound effects on women's psychological well-being when perpetrated by a family member.

Looking at attachment, Roche et al. (1999) found that women who had not been abused were significantly more secure and less fearful than those who had. In addition, women who experienced intrafamilial abuse were less secure, more fearful and less dismissing than those who experienced extrafamilial abuse. In addition, comparing participants based on models of self and others revealed that while intrafamilial and extrafamilial sexual abuse had equally negative effects on women's models of others, intrafamilial sexual abuse had more negative effects than extrafamilial sexual abuse on women's models of the self.

A multivariate multiple regression analysis revealed that the 10 TSI scales accounted for a significant 35% of the variance in the four attachment measures (Roche et al., 1999). Additional analyses indicated that the model-of-self attachment dimension was significantly associated with all 10 TSI scales while the model-of-others attachment dimension was related to depression, defensive avoidance, dissociation, intrusive experiences, impaired self-reference and sexual concerns.

Having established that sexual abuse was related to both attachment and the aftereffects of trauma, and that attachment was related to the aftereffects of trauma, Roche et al. went on to test the hypothesized mediating role of attachment. As predicted, multivariate partial correlation set analyses indicated that attachment, independent of childhood sexual abuse, was related to TSI scores both when all four attachment styles

were considered and when only the two dimensions underlying attachment were considered, accounting for 31% and 30% of the variance, respectively. After controlling for attachment, however, childhood experiences of sexual abuse were no longer related to TSI scores, indicating that attachment fully mediated the observed relations between sexual abuse and the psychological aftereffects of trauma.

Using a sample of 224 college students, Sandberg, Suess and Heaton (2010) also found a partial mediating effect for attachment anxiety on the relationship between intimate partner violence and posttraumatic stress with a 95% confidence interval of .0007 to .0044 for the indirect effect. In addition, they reported a partial mediation effect of attachment anxiety on the relationship between adolescent or adult sexual victimization and posttraumatic stress with a 95% confidence interval for the indirect effect of .0010 to .0047.

Other research suggests that attachment may also mediate the relation between trauma and BPD. Relevant here is Carlson, Egeland, and Sroufe's (2009) study of the relations between childhood maltreatment, attachment and BPD in their longitudinal study of 80 women and 82 men whose mothers had been at risk for parenting problems. Analyses of these data revealed that BPD symptoms measured when participants were 28 years old were significantly correlated with maltreatment measured between 12 and 18 months of age ($r = .20$) and disorganized attachment (a form of insecure infant attachment) measured between 12 and 18 months of age ($r = .20$). Given its longitudinal design, this study provides relatively strong evidence for the possible contribution of childhood maltreatment to disturbed childhood attachment and subsequent BPD. In addition, Roche et al.'s (1999) findings also suggest that attachment may mediate the

relation between trauma and BPD in that some of the TSI scales, particularly those measuring impaired self-reference and self-harm, assess symptoms associated with BPD.

In sum, there is much evidence indicating that attachment mediates the relation between childhood trauma and PTSD-related aftereffects. There is also evidence that attachment mediates the relation between childhood trauma and BPD, although this evidence is less definitive. Further, because research in this area has for the most part been correlational, it is not clear whether attachment is the result or cause of trauma. It is conceivable that early maltreatment and loss serve as risk factors for subsequent maltreatment, through compromising secure attachment, thus reducing children's social support networks and putting children at risk for further victimization. For example, Liem and Boudewyn (1999) analyzed data from 253 male and 434 female undergraduate students found that early childhood maltreatment and losses predicted subsequent childhood sexual abuse and adult maltreatment.

Attachment as independent of trauma and its aftereffects. A number of researchers argue that attachment is independent of trauma and it has been suggested that the observed relations between attachment and trauma are no more than an artefact of the fact that child abuse usually occurs in dysfunctional families (e.g., Alexander, 1993; Murray, 1993). Consistent with this, the dynamics of abusive families, which include parental conflict, lack of family cohesion, paternal dominance, role reversal and rejection, are the same as observed in families with insecure attachment. Further, the effects of family interactions patterns have been found to be associated with psychological and behavioural problems over and above the effects of child abuse and its severity (for brief reviews see Alexander, 1992, 1993). Alexander (1993) therefore predicted that trauma

would predict trauma-related symptoms such as depression, intrusive thoughts and avoidance, while attachment would predict basic personality structure, as reflected in measures of BPD and other personality disorders.

To test her hypotheses, Alexander (1993) analyzed data provided by 112 community-based incest survivors. In line with other research indicating the relation between trauma and insecure attachment, the attachment pattern of this sample was significantly different from that observed by Bartholomew and Horowitz (1991; see Table 1): 58% had a fearful attachment style while only 16% had a dismissing style, 14% had a secure style and 13% had a preoccupied style. Stepwise multiple regressions revealed that characteristics of women's abuse best predicted trauma-related symptoms such as depression, intrusive thoughts and avoidance, while attachment best predicted general distress and basic personality structure. Notably, abuse characteristics failed to account for women's BPD scores in the first step of the regression, while their fearful and preoccupied attachment scores subsequently explained 17.0% of the variance.

In line with Alexander's (1993) findings, Classen, Pain, Field & Woods (2006) recently asserted "that disorganized attachment underlies BPD and, thus, the symptoms characteristic of BPD are viewed as adaptations to living with a disorganized attachment pattern" (p. 88). Disorganized attachment typically refers to infants whose behaviours do not conform to any consistent pattern of attachment (e.g., secure or anxious-avoidant) and who are likely to have been maltreated (Cole-Detke & Kobak, 1998). A caregiver's failure to protect a child from overwhelming distress and a child viewing the caregiver simultaneously as a source of both fear and reassurance produce the internal conflicts that lead to disorganized attachment (Classen et al., 2006).

The suggestion that BPD is an attachment disorder is not surprising given that intense, unstable relationships are one of its hallmark features. The findings of Agrawal, Gunderson, Holmes, and Lyons-Ruth (2004) review of 13 studies examining BPD and attachment are also consistent with this suggestion. In each of these studies, BPD was associated with an insecure form of attachment, most commonly fearful or unresolved with regard to trauma (32.2 to 89.0%) and preoccupied (23.0 to 75.0%) rather than dismissing attachment (13.4 to 20.0%). Surprisingly, secure attachment was found in 0 to 29.8% of these 13 samples of people with BPD. However, six of the seven studies that used diagnostic measures of BPD and included secure attachment reported rates from 0 to 9%, suggesting that 29.8% is probably an overestimate. Since Agrawal et al.'s review, a number of other studies have documented comparable relations between BPD and insecure forms of attachment, particularly fearful attachment (e.g., Critchfield, Levy, Clarkin, & Kernberg, 2008; Minzenberg, Poole, & Vinogradov, 2006).

Classen et al. also conceptualized DESNOS as "a chronic adaptation to PTSD and [asserted] that severe, unresolved chronic traumatization in childhood leads to more than a collection of symptoms – it actually shapes the personality, meeting the definition of a personality disorder" (Classen et al., 2006, p. 88). Consistent with this, under associated features of PTSD the *DSM-IV* (APA, 2000) includes a number of the personality-related characteristics documented in the *DSM* PTSD field trial (van der Kolk, et al., 2005).

Given this, Classen et al. (2006) proposed two new diagnostic categories: posttraumatic personality disorder-disorganized (PTPD-D) and posttraumatic personality disorder-organized (PTPD-O). As shown in Table 1, Classen et al. propose that the traumatization of children with disorganized attachment results in PTPD-D, which

consists of a melding of DESNOS and BPD. Those diagnosed with PTPD-D are unlikely to have had early attachment experiences that did not include fear and are likely to have an unstable sense of self. They both long for and fear interpersonal connections and can become dependent on the very perpetrator they fear (Classen et al., 2006).

On the other hand, Classen et al. theorize that the traumatization of children with organized attachment results in PTPD-O. Because such people have been seriously traumatized, they are likely to fulfill the criteria for DESNOS. However, because they had a stable attachment pattern with at least one caregiver, they are unlikely to meet the criteria for BPD. According to Classen et al., (2006), this attachment stability allows them to perceive the wrongfulness of their abuser's actions. In addition, and compared to those with BPD whose emotions can oscillate between extremely positive and negative and whose relationships are chaotic and intense, those with PTPD-O experience more consistent negative feelings and try to avoid or placate others.

Table 2.

Classen et al.'s Conceptualization of Posttraumatic Personality Disorder

	Chronic Child abuse	
Attachment	Less	More
Organized	No diagnosis	PTPD-O (DESNOS)
Disorganized	BPD	PTPD-D (BPD & DESNOS)

Finally, Classen et al. suggest that people with disorganized attachment but little exposure to trauma be diagnosed with BPD. Classen et al. describe these individuals as

experiencing substantially less fear and dissociation than those diagnosed with PTPD-D.

Findings in line with the PTPD model were observed in Zlotnick et al.'s (2003) study of 165 women diagnosed with BPD and/or current PTSD, 88.5% of whom had been maltreated. In this sample, participants with PTSD only (n = 29) or both PTSD and BPD (n = 71) had higher rates of sexual, physical, emotional and verbal abuse than those with BPD only (n = 86). Further, in line with Classen et al.'s (2006) assertion that people with PTPD-D have more severe deficits in functioning, women with comorbid BPD and PTSD had a greater likelihood of hospitalization and lower scores on an assessment of general functioning than women with BPD or PTSD only.

What is important about Classen et al.,' (2006) proposed model is that, unlike other diagnostic reformulations (e.g., Complex PTSD or DESNOS), it is not simply another label for the symptoms following severe interpersonal trauma. Instead, by integrating the findings concerning BPD and attachment with those concerning PTSD and DESNOS, PTPD has the potential to explain the complexity of different people's reactions to severe trauma. In addition, Classen et al.'s perspective can theoretically account for BPD in the absence of trauma.

The Present Study

The purpose of the present study is to examine the role of attachment in the relations between childhood maltreatment, DESNOS and BPD, particularly as articulated by Classen et al. (2006). If, as argued by Classen et al., BPD is an attachment disorder rather than an aftereffect of trauma, BPD scores should vary simply as a function of attachment style and DESNOS scores should vary only as a function of experiences of trauma. Stated differently, Classen et al.'s model predicts a main effect of attachment on

BPD scores and a main effect of childhood trauma on DESNOS scores.

Although Classen et al.'s (2006) model considers the infant attachment style disorganized attachment, other research (e.g., Elwood & Williams, 2007; Roche et al., 1999) has found relations between self-reported adult attachment styles (e.g., attachment anxiety/negative models of the self) and PTSD. In addition, disorganized attachment cannot be measured using self-report methods, which will be used in this study to assure anonymity. Given this, the dimensions of attachment anxiety and avoidance will be considered in this research. Similarly, although the PTPD model does not include the effects of interpersonal trauma in adulthood, experiences of physical, sexual and emotional abuse in both childhood and adulthood will be considered because other researchers have demonstrated relations between intimate partner violence and both attachment style (e.g., Henderson et al., 1997, Henderson et al., 2005) and PTSD (Scott & Babcock, 2010).

Though other studies have demonstrated that attachment is a mediator between trauma and PTSD, and some have conceptualized attachment as a moderator, these same potential relationships have not been tested with regards to DESNOS. It is plausible that, though inconsistent with the PTPD model, attachment could act as a partial mediator between trauma and DESNOS symptoms by increasing vulnerability to psychological distress just as was found with PTSD. Thus, the main effects, and the moderating and mediating roles of both attachment anxiety and attachment avoidance in the relations between interpersonal trauma and both BPD and DESNOS will be tested.

It is hypothesized that attachment will act as a mediator between interpersonal trauma and symptoms of BPD and DESNOS. Though DESNOS and BPD are both

characterized by dysfunctional relations with others, according to Luxenberg, Spinazzola, & van der Kolk (2001), the quality of these dysfunctions differs. In BPD, the person actively approaches relationships, yet oscillates between idolizing and devaluing intimate partners. In contrast, those with DESNOS are typically passive and avoidant in relationships, and are prone to revictimization. Thus, it is hypothesized that specifically attachment anxiety, but not avoidance, should mediate the relationship between trauma and BPD symptoms, as the typical relationship style of those with BPD is consistent with high attachment anxiety, but not with high avoidance. In contrast, it is expected that attachment anxiety and avoidance will both act as mediators between trauma and DESNOS symptoms.

Method

Participants

Participants were 239 female undergraduate university students who were invited to participate in an online study in return for bonus marks in their introductory psychology course.[3] On average these participants were 19.8 years old (M = 19.82, SD = 2.54, range = 17 to 39 years). The median age was 19, and the interquartile range was 18 to 21. The full range was 17 to 39, but there were only four participants above the age of 25. With regard to race/ethnicity, most participants were White/Caucasian (62.3%) while

[3] Female university students are known to have experienced considerable traumatisation. In one study (Vrana & Lauterbach, 1994), 84% of college students reported experiencing at least one traumatic event and about a third reported experiencing four or more traumatic events, with women more likely than men to report experiencing rape and partner abuse. Similarly, 38% of female university students in Elwood and Williams' (2007) study endorsed at least one instance of physical abuse, attempted sexual assault or completed sexual assault and 27.6% of the female university students in Roche et al.'s (1999) study reported experiences of childhood sexual abuse. Given such results, female university students are likely to have experienced sufficient trauma to test the current proposed relationships.

the remainder indicated that they were Black/African American (7.1%), Arab/West Asian (6.3%), East Asian/Pacific Islander (6.3%), South Asian/East Indian (5.0%), multiracial (2.5%), Hispanic/Latino (2.1%), Aboriginal/Native American (1.3%), other (6.7%) or indicated that they would rather not say (4.0%). With regard to marital status, the majority were single (94.1%), while a small number were married or in a common law relationship (4.2%) and the remainder were separated (.4%) or divorced (.4%). Two participants (0.8%) were missing data on this variable.

Measures

Participants completed a questionnaire package containing measures of their demographic characteristics, exposure to interpersonal trauma, attachment style, BPD, and DESNOS symptoms.

Demographic measures. A demographic questionnaire was used to collect information regarding participants' gender,[4] age, racial/ethnic identity and marital status.

Interpersonal trauma. Interpersonal trauma was assessed using the Traumatic Antecedents Questionnaire (TAQ; van der Kolk, 1997), a 41 item self-report measure that assesses life experiences in 10 domains: competence, safety, neglect, separations, emotional abuse, physical abuse, sexual abuse, witnessing trauma, other traumas (i.e., natural disaster, serious accident), and exposure to drugs and alcohol, over four age ranges (0 – 6 years, 7 – 12 years, 13 - 18 years and adulthood). For each item, respondents rated the extent to which they had a particular experience using a 4-point scale ranging from *Never or not at all*, (0) to *Often or very much* (3) or by indicating *Don't know*.

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[4] As participants were informed that the study was only for women, those who did not identify as women were excluded from analysis.

Responses to the sexual abuse (e.g., "Someone forced me to have sex against my will"), physical abuse (e.g., "I was beaten, kicked or punched by someone close to me"), emotional abuse (e. g. "People in my family called me insulting names"), and neglect (e.g., "I felt that nobody cared whether I lived or died") domains were combined to form a measure of the total number of interpersonal traumas experienced between the ages of 0 and 18 years. The measure of total interpersonal trauma experienced during adulthood was formed on the basis of participants' responses to only the physical, sexual and emotional abuse items domains because some of the items measuring neglect were only applicable to children.

Although the psychometric properties of this scale have yet to be established, van der Kolk (1997) reports that the TAQ scores of 70 consecutively admitted trauma outpatients were significantly related to their PTSD and DESNOS symptoms, especially for those who experienced trauma during childhood and adolescence as opposed to adulthood.

Attachment. Participants' attachment style was measured using the Experiences in Close Relationships (ECR) scale (Brennan et al., 1998), which measures the two dimensions underlying Bartholomew and Horowitz's (1991) four category model of attachment. In the ECR participants used scales ranging from *Disagree strongly* (1) to *Agree strongly* (7) to rate their agreement with 18 items measuring attachment anxiety (e.g., "I worry about being abandoned" and "I need a lot of reassurance that I am loved by my partner") and 18 items measuring attachment avoidance (e.g., "I am nervous when partners get too close to me" and "I don't feel comfortable depending on romantic partners").

Evidence of the validity of the ECR comes from Brennan et al., (1998) who found that university students (N = 1,085) classified using Bartholomew and Horowitz's (1991) four category model of attachment had theoretically consistent differences in their ECR anxiety and avoidance scores. Specifically, the avoidance scores of fearful and dismissing participants were significantly higher than those of preoccupied and secure participants. Secure participants also had lower avoidance scores than preoccupied ones. In addition, the anxiety scores of preoccupied participants were significantly higher than those with any of the 3 other attachment styles and participants with fearful attachment styles had higher anxiety scores than those with secure and dismissing styles, whose anxiety scores did not differ. Brennan et al., (1998) also reported that avoidance and anxiety scores were independent in their initial sample of university students. In Minzenberg et al.'s (2006) sample of 40 people with BPD and 20 controls, the items comprising the avoidance and anxiety scales were internally consistent, with alphas of .94 and .93, respectively. Similarly, Sandberg et al. (2010) found alpha reliability coefficients of .90 for anxiety and .92 for avoidance in their sample of 224 college students.

Borderline Personality Disorder. BPD was measured using the Borderline Features Scale of the Personality Assessment Inventory (PAI; Morey, 1991), which has six items for each of four subscales: Affective Instability (e.g., "My mood can shift quite suddenly"), Identity Problems (e.g., "My attitude about myself changes a lot"), Negative Relationships (e.g., "My relationships have been stormy"), and Self-Harm (e.g., "When I'm upset, I typically do something to hurt myself"). In this measure participants rated the self-descriptiveness of each item using scales ranging from *Totally false* (0) to *Very*

true (3).

Morey (1991) indicated that with regards to construct validity, the PAI Borderline Features Scale was constructed based on the findings of a variety of empirical studies of the factors which comprise BPD. With regards to convergent validity, Morey indicated that the PAI Borderline Features Scale was strongly correlated, $r = .77$, with the Minnesota Multiphasic Personality Inventory (MMPI). In addition, Gardner and Qualter (2009) found that the PAI borderline scale was strongly correlated with both the BPD scale of the Personality Diagnostic Questionnaire-4 (PDQ4; Hyler, 1994), $r = .85$, and the Mclean Screening Instrument for BPD (MSI-BPD; Zanarini et al., 2003), $r = .86$. Further, both the PAI and PDQ4 borderline scales showed incremental validity over the MSI-BPD scale in predicting eating and substance abuse disorders, disorders often comorbid with BPD (Gardner & Qualter, 2009). In an assessment of the internal consistency of the PAI with 78 male and 33 female psychiatric inpatients, Boone (1998) reported an alpha of .88, a value that was equal to the coefficient of .91 obtained for the clinical standardization group of 1,265 people. Boyle and Lennon (1994) reported a test-retest reliability of .73 over 28 days in a sample of 70 psychiatrically healthy controls.

DESNOS. The Self-Report Inventory for Disorders of Extreme Stress (SIDES-SR; van der Kolk, 2002) is a 45 item self-report measure of DESNOS symptom severity with six subscales measuring alterations in regulation of affect and impulses (e.g., "I find it hard to calm myself down after I become upset and have trouble getting back on track"), alterations in attention or consciousness (e.g., "I have difficulty keeping track of time in my daily life"), alterations in self-perception (e.g., "I feel that I have something wrong with me after what happened to me, that can never be fixed"), alterations in

relationships with others (e.g., "I have trouble trusting people"), somatization (e.g., "I have trouble with (circle all items that apply: vomiting, abdominal pain, diarrhoea, nausea, intolerance of food), yet doctors have not found a clear cause for it") and alterations in systems of meaning (e.g., "I believe that life has lost its meaning"). Participants indicated if they had experienced each symptom and rated how much the symptom bothered them using a 4-point scale ranging from *No impairment in functioning* (0) to the *largest amount of impairment* (3). The specific response options varied between items. For example, for the item "When I feel upset, I have trouble finding ways to calm myself down" the response options were: *None; not at all* (0), *I need to make special efforts to calm myself (e.g., talking, sports, listening to music)* (1), *I need to stop everything and focus all my energy on calming down* (2), and *I need to resort to extreme measures, like getting drunk, taking drugs, or doing other harmful things to my body* (3).

In a sample of 61 trauma patients, the full DESNOS scale ($\alpha = .93$) and five of six subscales (αs = .74 to .82) were found to have acceptable levels of internal consistency while the somatization scale was somewhat less internally consistency ($\alpha = .68$) (van der Kolk, 2002). Further reliability information is not yet available for this scale. It is, however, the only self-report measure of DESNOS currently available and is closely based on the Structured Interview for Disorders of Extreme Stress (Pelcovitz et al., 1997) that differentiated between survivors of interpersonal and non-interpersonal traumas in the *DSM-IV* field trial for DESNOS.

Procedure

Participants were invited to participate in a study of "Women's relationship experiences and psychological well-being across the lifespan," accessible through the

university's online system. Participants first read a consent form describing the purpose of the study and the requirements of their participation. They then confirmed their consent electronically by clicking a button to continue to the study. Participants next completed the measures described above, which appeared in randomized orders to avoid carry-over effects. Upon completion of the questionnaire package, participants were asked to read a written debriefing explaining the purpose the research and providing contact information for the researcher, the Carleton University Ethics Committee, the chair of the Psychology Department and resources for support in the event that they were at all distressed as a result of their participation in the study.

Results

The analyses were completed in two phases. Preliminary analyses were conducted to prepare the data before moving on to the main analyses that were conducted to test the hypotheses.

Preliminary Analyses

In the preliminary analyses, missing data were addressed, scales were constructed, the assumptions of multivariate regression were tested, and descriptive statistics were computed and interpreted based on the anchors of the scales.

Missing data. Of the 288 participants who started the study, 37 were missing data for one or more of the predictor or criterion variables. Little's Missing Completely at Random (MCAR) test, χ^2 (175) = 155.09, p = .86, revealed these data were most likely missing in a random fashion. These 37 cases were therefore excluded from the analyses, leaving 251 cases with complete data for the measures of lifetime DESNOS, BPD, anxiety, avoidance and total trauma exposure.

Table 3.

Internal Consistency and Descriptive Statistics for the Predictor, Mediating and Criterion Variables

Measure	# items	*M* inter-item *r*	α	Potential range	Actual Range	*M*	*SD*
Child sexual abuse	12	.50	.90	0 - 3	0 – 2.00	.07	.23
Child emotional abuse	15	.41	.91	0 - 3	0 – 2.93	.51	.58
Child physical abuse	9	.38	.84	0 -3	0 – 2.00	.14	.30
Child neglect	15	.27	.82	0 - 3	0 – 2.00	.33	.67
Adult sexual abuse	4	.60	.81	0 - 3	0 – 2.00	.05	.23
Adult emotional abuse	5	.41	.77	0 - 3	0 – 2.00	.50	.65
Adult physical abuse	3	.62	.83	0 - 3	0 – 2.33	.10	.33
Total trauma	15	.46	.92	0 - 60	0 – 30.00	3.78	4.42
Attachment anxiety	18	.30	.88	1 - 7	1.00 – 6.44	3.86	1.01
Attachment avoidance	18	.42	.93	1 - 7	1.00 – 5.72	3.21	1.10
Lifetime DESNOS	45	.16	.89	0 - 1	0 – .91	.29	.19
Current DESNOS	45	.20	.92	0 - 3	0 – 1.53	.37	.30
BPD	24	.26	.89	0 - 3	.17 – 2.42	1.17	.45

Scale construction. Item analyses were conducted to examine the internal consistency of the interpersonal trauma, BPD, DESNOS and attachment scales. As

shown in Table 3, which presents the mean inter-item correlations and alpha coefficients, all of the measures were internally consistent, with alpha values ranging from .77 to .93. Given this, total BPD, lifetime and current DESNOS, anxiety and avoidance scores were formed by calculating the mean, resulting in higher scores indicating more of the construct being measured. As shown in Table 4, participants' childhood and adult trauma scores were all moderately intercorrelated, with *r*s ranging from .31 to .80. Given this, a measure of total trauma was formed by summing all of the types of trauma experienced across the various age groups.

Other analyses revealed that, while participants' BPD, anxiety and avoidance scores were normally distributed and without outliers, scores on the measures of lifetime DESNOS, current DESNOS, and total trauma were positively skewed. In addition, there were three outliers with *z*-scores exceeding 3.29 (representing a difference from the distribution mean significant at $p < .001$) on the measure of current DESNOS and seven outliers on the measure of total traumatic experiences. The scores of these three outliers were recoded to bring them within a *z*-score of 3.29 while maintaining their rank order within the dataset (Tabachnick & Fidell, 2007). After transforming current DESNOS, lifetime DESNOS and total trauma scores using a log transformation, current DESNOS scores remained positively skewed (*skew* = .856, *SD* = .157). Given this, and the large correlation between lifetime and current DESNOS scores, $r = .91$, $p < .001$, only lifetime DESNOS was used as a criterion variable in the subsequent analyses[5].

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[5] Analyses performed with current DESNOS as the dependent variable had very similar results to those performed with lifetime DESNOS, with one exception. In the stepwise multiple regression to test the moderation effects of anxiety on the relationship of trauma to DESNOS, the interaction effect of anxiety and trauma was small but significant, $\beta = .114$, $p = .03$.

Table 4.

Correlations among the Measures of Childhood and Adult Trauma

Trauma	1	2	3	4	5	6
1. Childhood sexual abuse	-					
2. Childhood emotional abuse	.35***	-				
3. Childhood physical abuse	.66***	.51***	-			
4. Childhood neglect	.51***	.64***	.50***	-		
5. Adult sexual abuse	.82***	.41***	.62***	.49***	-	
6. Adult emotional abuse	.31***	.80***	.45***	.54***	.40***	-
7. Adult physical abuse	.62***	.48***	.74***	.49***	.64***	.53***

***$p < .001$, two-tailed

Twelve multivariate outliers were also identified with Mahalanobis distance values greater than 11.07. Deleting these cases left a total of 239 participants. Examining scatterplots revealed linear relations among the measures and there was no evidence of multicollinearity, which was also evident from the correlational findings presented below in Table 5.

Descriptive statistics. Table 3 displays the descriptive statistics for the predictor, mediator and criterion variables. The means and standard deviations for the various traumas indicated that most participants experienced the traumas between *never/not at all*

and *rarely/a little bit*. With regards to the prevalence rates of the various traumas, however, 31.4% of participants endorsed having ever experienced sexual abuse, 37.3% had ever experienced physical abuse, 56.5% had experienced emotional abuse at least *occasionally or moderately*, and 51.9% had experienced neglect at least *occasionally or moderately*.

The mean for the attachment anxiety items indicated that the average participant rated anxiety items as *neutral*, with the standard deviation indicating most participants rating the items between *slightly disagree* and *slightly agree*. The mean of avoidance was slightly lower indicating that the average participant rated avoidance items as *slightly disagree*, with the majority of participants rating the items between *moderately disagree* and *neutral*.

On average participants endorsed 29% of the lifetime DESNOS items, with most participants endorsing between 10 and 48%. Because lifetime DESNOS was skewed, however, the median was a better indicator of central tendency than the mean. The median of .24 indicated that the median participant endorsed 24% of DESNOS symptoms and the interquartile range of .14 - .41 indicated that the middle 50% of participants endorsed between 14 - 41% of symptoms. Consistent with this, most participants indicated that, currently, they were *not at all* to *somewhat* bothered by the symptoms of DESNOS.

Finally, on average participants rated the BPD items as *slightly true* of themselves, with most rating them between *totally false* and *mainly true*. When scores were converted into *T*-scores based on a conversion chart from a college standardization sample (Morey, 1991), the mean *T*-score for participants was 54.82*T*. Importantly, this

mean was below 59*T*. Scores at or below 59*T* are characteristic of people who are emotionally stable with stable relationships (Morey, 1991). In total, 66.5% of participants had a score of 59*T* or less. Another 25.1% of participants scored between 60*T* – 69*T*, which according to Morey (1991) indicates moodiness, sensitivity, some anger, uncertainty regarding life goals and dissatisfaction with relationships. The remainder of participants, 8.4%, scored 70*T* or above, indicating that they were likely to be emotionally labile, impulsive, angry, suspicious, anxious and needy, with problems sustaining relationships (Morey, 1991).

Main Analyses

The main analyses examined the intercorrelations among the predictor, mediator and criterion variables, and the mediating and moderating effects of attachment on the relation of traumatic experiences to DESNOS and BPD.

Table 5.

Correlations among the Predictor, Criterion and Attachment Measures

Variable	1	2	3	4
1. Total trauma	-			
2. Lifetime DESNOS	.61***	-		
3. BPD	.53***	.69***	-	
4. Attachment anxiety	.46***	.51***	.63***	-
5. Attachment avoidance	.20***	.30***	.28***	.22***

***$p < .001$, two tailed.

Correlation analyses. As displayed in Table 5, participants' lifetime DESNOS scores were moderately correlated with their BPD scores while their attachment anxiety and avoidance scores were only slightly, albeit significantly, correlated. As expected, participants who reported experiencing more interpersonal traumas had moderately higher anxiety, DESNOS and BPD scores, as well as slightly higher avoidance scores. Notably, relative to attachment avoidance, attachment anxiety was more strongly correlated with total trauma, $t(236) = 3.51, p < .001$, lifetime DESNOS, $t(236) = 2.92, p < .01$, and BPD scores, $t(236) = 5.23, p < .001$.

Mediating role of attachment. The mediating roles of attachment in the relations of trauma with DESNOS and BPD were tested using a series of simultaneous regression analyses. In the first simultaneous regression analysis (see Figure 1), total trauma,[6] $\beta = .455$, $t(235) = 8.33, p < .001$, attachment anxiety, $\beta = .267$, $t(235) = 4.89, p < .001$, and attachment avoidance, $\beta = .145$, $t(235) = 2.91, p = .004$, each made a unique contribution to the equation that explained 45.4% of the variance in lifetime DESNOS scores, $F(3, 235) = 65.11, p < .001$. Regression analyses also indicated that total trauma was a significant predictor of both attachment anxiety, $R^2 = .206$, $\beta = .457$, $t(237) = 7.91$, $p < .001$, and attachment avoidance, $R^2 = .041, p = .002$, $\beta = .204$, $t(237) = 3.20, p = .002$.

The simultaneous regression of BPD scores onto total trauma, anxiety and avoidance scores (see Figure 2) indicated that the three predictors collectively accounted for 48.0% of the variance in BPD scores, $F(3, 235) = 72.24, p < .001$, and that total

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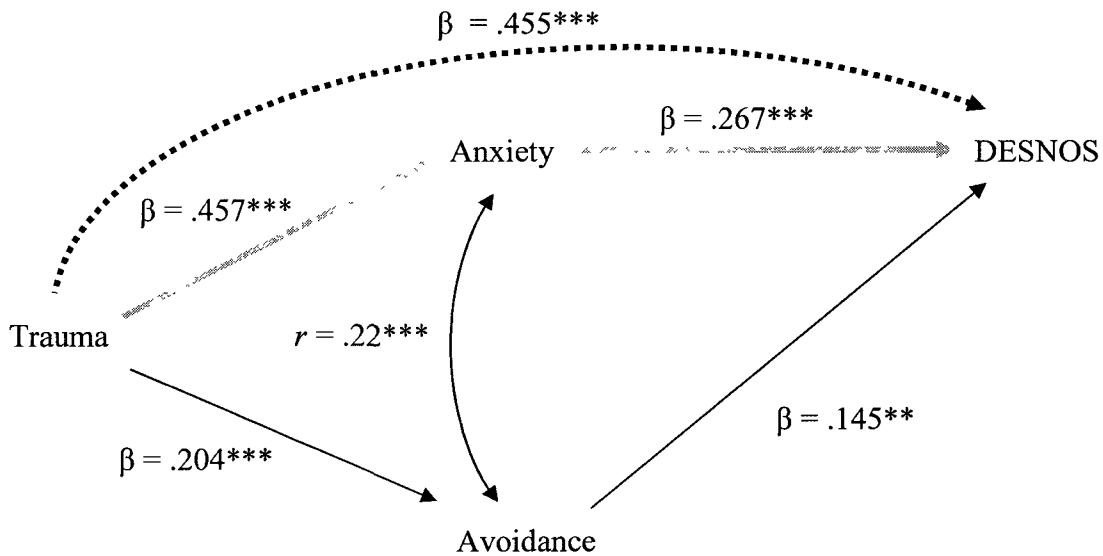
[6] Separate mediation models were tested for childhood experiences of neglect, emotional abuse, physical abuse and sexual abuse, as well as adult experiences of emotional abuse, physical abuse and sexual abuse. Results followed the same pattern of relationships with two exceptions: physical and sexual abuse in both childhood and adulthood did not predict avoidance, indicating that avoidance does not mediate the relations of sexual and physical abuse with BPD and DESNOS.

trauma, β = .284, $t(235) = 5.33$, $p < .001$, anxiety, β = .474, $t(235) = 8.87$, $p < .001$, and avoidance, β = .117, $t(235) = 2.41$, $p = .017$, were all significant predictors. As in the mediation model for lifetime DESNOS, trauma predicted both attachment anxiety and avoidance.

Figure 1.

Effect of Trauma on DESNOS Mediated by Attachment Anxiety and Avoidance



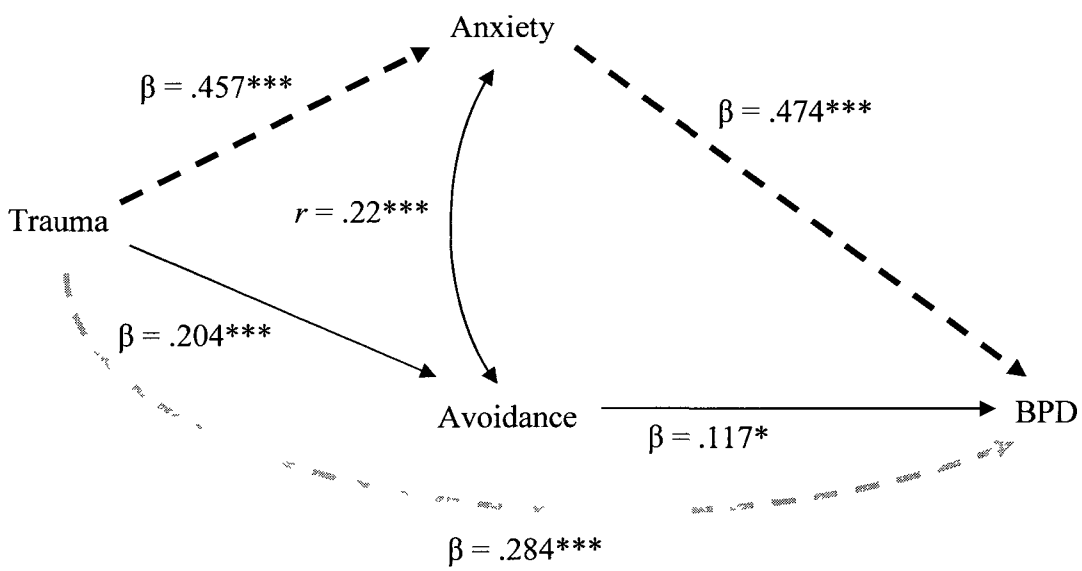
$p < .05$, $^{**}p < .01$, $^{***}p < .001$, two tailed.

Bootstrapping procedures (Preacher & Hayes, 2008) were used to test the significance of the indirect effects. The data were used to create distributions of the indirect effects of anxiety and avoidance on both DESNOS and BPD, derived from 5000 bootstrap samples of the same size, sampled with replacement. In these distributions the mean estimated indirect effect of anxiety on DESNOS was .023, $SE = .005$, with a 95% confidence interval of .013 to .034, and the mean estimated indirect effect of avoidance on DESNOS was .005, $SE = .002$, with a 95% confidence interval of .002 to .012. The mean estimated indirect effect of anxiety on BPD was .300, $SE = .048$, with a 95%

confidence interval of .211 to .402, while the mean estimated indirect effect of avoidance on BPD was considerably smaller at .033, *SE* = .016, with a 95% confidence interval of .008 to .075. Because none of these confidence intervals include zero, it can be concluded with 95% certainty that all of the indirect effects of both attachment anxiety and avoidance are significantly different from zero.

Figure 2.

Effect of Trauma on BPD Mediated by Attachment Anxiety and Avoidance



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

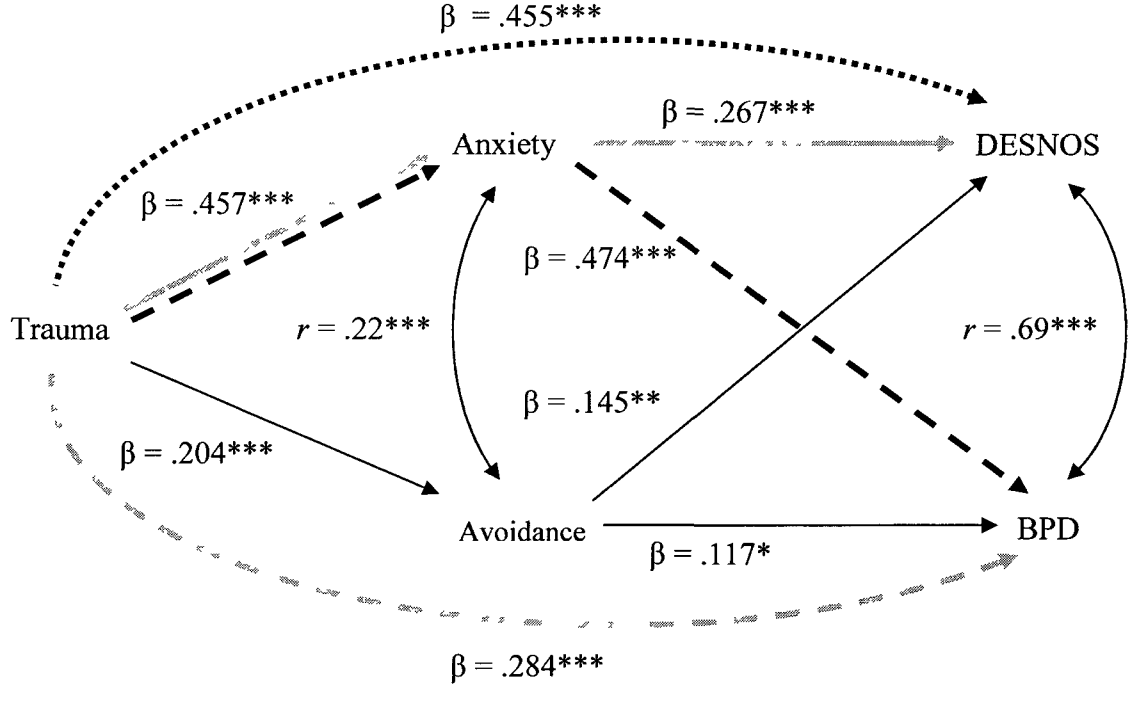
In addition, a contrast indicated that the indirect effect of trauma on DESNOS via attachment anxiety was larger than the indirect effect of trauma on DESNOS via attachment avoidance, $z = 2.83$, $p = .005$. A contrast also indicated that the indirect effect of trauma on BPD via attachment anxiety was larger than the indirect effect of trauma on BPD via attachment avoidance, $z = 4.99$, $p < .001$.

Figure 3 displays the paths for the regressions testing the mediation effects of

attachment on both BPD and DESNOS together with the correlations between BPD and DESNOS and anxiety and avoidance. The paths in Figure 3 appear to indicate that the direct path of trauma to DESNOS (shown as the dotted line) may be stronger than the indirect path of trauma to DESNOS mediated by anxiety (shown as the grey solid line). The reverse appeared to be the case with regards to BPD, with the indirect effect of trauma mediated by anxiety (shown by the black dashed line) appearing stronger than the direct effect of trauma on BPD (shown by the grey dashed line).

Figure 3.

Effects of Trauma on DESNOS and BPD Mediated by Attachment Anxiety and Avoidance



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

To quantify the above observations, squared semi-partial correlations were calculated for each predictor and mediator with DESNOS and BPD, controlling for each of the others. The squared semi-partial correlation of trauma with DESNOS independent

of anxiety and avoidance, $sr^2 = .16$, indicated that trauma scores accounted for a greater proportion of the variance in DESNOS scores than anxiety, independent of avoidance and trauma, $sr^2 = .05$, and avoidance, independent of anxiety and trauma, $sr^2 = .02$. The squared semi-partial correlation of attachment anxiety with BPD, independent of trauma and avoidance, $sr^2 = .17$, indicated that anxiety scores accounted for a greater proportion of the variance in BPD scores than did trauma, independent of anxiety and avoidance, $sr^2 = .06$, and avoidance, independent of anxiety and trauma, $sr^2 = .01$.

Moderating role of attachment. Hierarchical regression analyses were conducted to examine the moderating role of attachment in the trauma-DESNOS and trauma-BPD relationships. To avoid multicollinearity between the predictor and moderator variables (i.e., trauma and attachment anxiety and avoidance scores) and their interaction terms, the predictor variables were standardized before the interaction terms were created.

In these hierarchical regression analyses total trauma, anxiety and avoidance scores were entered in block one. Block two contained the two-way interactions between trauma and anxiety and trauma and avoidance. As displayed in Table 6, neither of the two-way interaction terms accounted for a significant portion of the variance in lifetime DESNOS scores over and above that explained by the main effects of trauma, anxiety and avoidance. Hence attachment did not moderate the trauma-DESNOS relation.

Table 7 displays the results of comparable analyses examining the moderating role of attachment in the trauma-BPD relationship. As indicated there, the interactions of trauma with anxiety and avoidance were also not significant, indicating that attachment did not moderate the trauma-BPD relation.

Table 6.

Hierarchical Regression of DESNOS Scores on Trauma, Anxiety and Avoidance Scores

Block and term	β	t	R	R^2	R^2 *change*	*F change*
Block 1:			.674	.454		65.11***
Total trauma	.455	8.33***				
Anxiety	.267	4.89***				
Avoidance	.145	2.91**				
Block 2:			.684	.467	.014	2.97
Trauma*Anxiety	.101	1.97				
Trauma*Avoidance	.035	0.69				

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

Additional Analyses

Additional analyses were conducted to examine the relations between participants' demographic characteristics and their scores on the predictor, mediating and criterion variables to assess whether they might provide alternative explanations for any of the findings reported above. Univariate analyses of variance (ANOVAs) revealed that the various racial/ethnic groups and marital statuses did not differ in any of the predictor or criterion variables. Participants' age was independent of their scores on all of the variables (i.e., *r*s = -.02 to .11, *ns*) with the exception of attachment avoidance, $r = -.15$, $p = .03$. Given its small size, this correlation was not considered problematic.

Table 7.

Hierarchical Regression of BPD Scores on Trauma, Anxiety and Avoidance Scores

Block and term	β	t	R	R^2	R^2 *change*	*F change*
Block 1:			.693	.480		72.24***
Total trauma	.284	5.33***				
Anxiety	.474	8.87***				
Avoidance	.117	2.41*				
Block 2:			.693	.480	.001	0.13
Trauma*Anxiety	.009	0.17				
Trauma*Avoidance	.020	0.40				

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

Discussion

The findings of this research indicate that attachment style mediates rather than moderates the relation between lifetime experiences of interpersonal trauma and its psychological aftereffects. Indeed, together interpersonal trauma and attachment anxiety and avoidance explained a sizeable 45.4% and 48.0% of the variance in these women's lifetime DESNOS and BPD scores, respectively. Although other researchers have observed that attachment mediates the relation between experiences of interpersonal trauma and PTSD and BPD or BPD-related symptoms (Carlson et al., 2009; Roche et al., 1999; Sandberg et al., 2010), this is the first study to document the mediating role of attachment in the relation between interpersonal trauma and DESNOS.

Interestingly, the relative sizes of the direct and indirect effects of interpersonal

trauma on DESNOS and BPD were generally, although not entirely consistent with Classen et al.'s (2006) model of PTPD. Specifically, these women's DESNOS scores were largely a direct effect of their experience of interpersonal trauma, which accounted for 16% of their variance, a finding in line with Classen et al.'s depiction of DESNOS as stemming from trauma. In comparison their scores on attachment anxiety and avoidance only accounted for 5% and 2% of variance, respectively. Nevertheless, attachment did partially mediate the relation between experiences of interpersonal trauma and lifetime DESNOS. These women's BPD scores, on the other hand, were largely a result of their attachment anxiety scores, which accounted for 17% of their variance, consistent with Classen et al.'s view of BPD as a disorganized attachment disorder. In comparison, trauma and avoidance only accounted for 6% and 1% of variance, respectively. Yet, interpersonal trauma still had both a direct effect on BPD and a larger indirect effect on BPD mediated by attachment. Given these findings, DESNOS may primarily be a trauma-related disorder and BPD may primarily be an attachment disorder, but neither disorder appears to be exclusively a trauma- or attachment-related disorder. In this sense, then, DESNOS and BPD appear to be conceptually similar while still being sufficiently different to merit their consideration as unique disorders. This interpretation receives some support from the large but far from perfect correlation observed between participants' DESNOS and BPD scores, similar to the finding of high comorbidity of DESNOS and BPD reported by McLean and Gallop (2003).

Because of the differences in the types of alterations in relationships seen in those with BPD compared to DESNOS, it was anticipated that attachment anxiety, but not attachment avoidance, would mediate the relation between trauma and BPD. This was

not supported, as both types of attachment were related to women's DESNOS and BPD symptom scores. Consistent with the findings of Muller and Lemieux (2000), however, the correlations of attachment anxiety with trauma, BPD and DESNOS, were all significantly larger than the correlations of attachment avoidance with these variables. Furthermore, the indirect effects of anxiety on both DESNOS and BPD were significantly larger than the indirect effects of avoidance. Thus, although the hypothesis was not completely supported, the role of attachment anxiety was more profound than that of attachment avoidance.

With regards to Classen et al.'s (2006) PTPD model, it is likely that if attachment anxiety plays a greater role in predicting BPD symptoms than in predicting DESNOS symptoms, what we would see is a very high level of attachment anxiety in PTPD-D and somewhat elevated anxiety in PTPD-O. It was not possible in this study to compare those with DESNOS only to those with DESNOS and BPD on attachment dimensions to test this, because of the non-clinical nature of the sample. Future research using diagnostic measures of DESNOS and BPD to categorize participants using the PTPD framework could evaluate this possibility. Further, this research is limited in that it does not provide a direct test of the attachment concept used in the PTPD model, as the model determines group membership based on organized attachment (including secure and insecure types) versus disorganized attachment (non-integrated schemas of self with other), rather than using the dimensions of attachment anxiety and avoidance.

According to Roche et al. (1999), though a negative model of others would impact functioning in relationships, the most serious impact of child sexual abuse may be the influence it has on the model of the self as undeserving of love and support. The current

results are in line with this position. Theoretically, attachment anxiety plays a greater role in influencing symptoms of BPD and DESNOS than avoidance because, as it represents a negative model of self and dependency on others for self-worth, it has broader implications for psychological functioning in the domains of self-regulation of affect and impulses. Consistent with this, Roche et al. (1999) did find that the model of self was more important in predicting a variety of trauma symptoms (including anxious arousal, anger/irritability, defensive avoidance, depression, dissociation, dysfunctional sexual behaviour, intrusive experiences, impaired-self reference, sexual concerns, and tension reduction behaviour) than was the model of others. In addition, Minzenberg et al., (2006) have reported an association between attachment anxiety and hostility and antagonistic behaviour, as well as with attentional and motor impulsivity. They suggested that the interaction of high negative affect with poor self-regulation of attention and behaviour could explain aggressive behaviour towards others and also self-harm that those with BPD may exhibit in stressful interpersonal situations. They found that attachment avoidance was not related to these domains and was instead related only to depressive symptoms and non-planning impulsivity.

Though trauma and attachment accounted for a portion of the variance in DESNOS and BPD scores, research into other factors that explain the remainder of the variance is warranted. For example, there may be neuropsychological differences that are either the result of trauma or that increase vulnerability to psychological distress following trauma. Much research has been done in this area with regards to neuropsychological impairments, especially in implicit, explicit and autobiographical memory, associated with PTSD (see Emilien et al., 2000 for a review), but determining

whether differences are present before trauma or are the results of trauma is difficult without longitudinal study. One such study (Marx, Doron-Lamarca, Proctor, & Vasterling, 2009) has found that in active duty soldiers, pre-deployment immediate visual recall is related to post-deployment PTSD symptom severity when controlling for pre-deployment symptoms, but further study is needed to expand these findings to other groups. With regards to BPD, some (e.g. Driessen et al., 2000) have found smaller volumes of the hippocampus and amygdala relative to controls. In addition, a review by LeGris and van Reekum (2006) documents findings of impairments in executive functioning, attention, verbal and visual memory, and visuospatial processing. Comparable studies of neuropsychological features of DESNOS could determine if patterns of impairment similar to those associated with PTSD and/or BPD are present. Longitudinal studies could determine whether these impairments represent premorbid risk factors or are the results of traumatization.

Like all research, this study has a number of limitations. One of its limitations stems from its reliance on the data provided by a convenience sample of female university students, most of whom were Caucasian. As a result, these findings cannot be generalized to men, groups of women who are older or have different levels of education and members of ethnic minority groups. Attachment could, for example, play a different role in the relation between men's experiences of interpersonal trauma and its psychological aftereffects. To examine this possibility, researchers might explore the role of attachment in the relation between trauma and its aftereffects in representative samples of other populations. That being said, the descriptive statistics indicated that these women's experiences of interpersonal trauma were on par with the levels of

traumatization reported by the women in other studies. For example, Vrana & Lauterbach found that 84% of college students had experienced at least one traumatic event. In the current sample, the full range of potential traumatic events was not assessed, but it was found that 76.2% of students had experienced at least one interpersonal trauma. In this sample, 26.8% of women reported experiencing sexual abuse before the age of 18, which is comparable to Roche et al.'s (1999) sample of female university students of whom 27.6% had experienced childhood sexual abuse. In addition 37.3% of this sample reported experiencing at least one instance of physical abuse, which is comparable to the rate of 38% of female university students in Elwood and Williams' (2007) study.

Another limitation comes from the cross-sectional design of this study. Although the mediation models that were tested involved causal hypotheses, these data are correlational and hence conclusions about causation cannot be made. Because it is neither possible nor desirable to manipulate and randomly assign people to levels of trauma exposure, all trauma research is necessarily correlational. Given this, longitudinal studies are likely to yield the most informative data regarding the role of attachment style in the relation between traumatic experiences and psychological aftereffects such as DESNOS and BPD. Theoretically, it may be that trauma creates or greatly contributes to disturbances in attachment, as was assumed in this study, but as some have suggested, attachment may also be a product of more general disturbances in the family environment (e.g., Alexander, 1993; Murray, 1993), and/or the failure of the attachment figure to protect the child against overwhelming distress, especially in situations where the attachment figure has contributed to the distress (Classen et al., 2006). Carlson et al.

(2009), for example, used a longitudinal design to establish a relationship between trauma and attachment during childhood and symptoms of BPD in adulthood, indicating that trauma and disturbed attachment preceded BPD symptoms. In this study, however, maltreatment and attachment measured at the same time in early childhood also predicted subsequent additional maltreatment. Thus, it is also likely that disturbed attachment, whether the result of maltreatment or not, puts individuals at risk for future victimization. Longitudinal research measuring early attachment and psychological well-being prior to any trauma, then recording any future trauma, and tracking changes in psychological well-being and attachment would provide the most definitive evidence to evaluate this.

Other methodological concerns include the possibility that participants' responses were biased in a way that inflated the observed relations between trauma, attachment style, DESNOS and BPD. The anonymity afforded by completing the study privately by computer should have gone some way to minimizing socially desirable responding. Further, had participants' responses been affected by any systematic bias one would not have expected to observe the differential relations of attachment anxiety and avoidance to DESNOS and BPD. And if participants responded carelessly, one would not have observed any relationships between the constructs assessed here. In view of this, any distortion in the findings of this study are likely to stem from the high functioning nature of this sample of female university students, which is likely to have attenuated the strength of the relationships observed in this study.

To the extent that the current findings are at least somewhat valid and reliable, these findings have a number of practical implications. Through revealing the role of attachment in the disorders of DESNOS, this research provides theoretical support for the

use of trauma therapies, such as contextual therapy (Gold, 2009), that prioritize developing self-soothing and other coping mechanisms, as well as establishing interpersonal trust and secure attachments, prior to engaging in in-depth exploration of traumatic memories. As noted by other researchers who have documented the role of attachment style in the relation between trauma and its aftereffects (e.g., Alexander, 1993; Brown, 2009; Roche et al., 1999), therapeutic interventions might usefully focus on trauma survivors' attachment-related difficulties as a way of improving their general psychological well-being. The therapist can model secure attachment behaviours and teach interpersonal skills that may never have been acquired in the first place due to the unavailability or unpredictability of early attachment figures (Gold, 2009). Therapists working with victims of complex trauma could encourage appropriate dependence and provide a source of secure attachment, which may help clients to develop secure attachments with others (Cole-Detke & Kobak, 1998; Courtois, 2008).

Furthermore, if the symptoms that set DESNOS apart from PTSD involve those associated with problematic attachment, as suggested by the current findings, traditional treatment approaches that focus on helping clients process their traumatic experiences may be less effective for clients experiencing DESNOS relative to those experiencing only PTSD (Courtois & Ford, 2009). Clinicians have noted that traditional trauma therapies involving detailed description of the traumatic event can result in clients becoming more symptomatic if they are not properly prepared (e.g. Courtois & Ford, 2009). In addition, a focus on trauma processing may be ineffective in ameliorating the interpersonal problems associated with DESNOS. Instead, re-establishing a sense of security in relationships may be more effective. As Herman (1992b) put it, if a woman's

sense of self is shattered by trauma it can only be rebuilt as it was in the past, in connection with others. In fact, establishing security in relationships prior to discussing trauma may allow for it to be discussed safely (Alexander, 1993).

Thus, the current findings also suggest directions for clinical research. Researchers might, for example, use quasi-experimental designs (e.g., a pre- post-treatment design) to assess the role of attachment in trauma-related psychological issues of clients receiving trauma therapies. Findings indicating that treatments targeting attachment are effective and that increases in attachment security are related to decreases in trauma symptoms would provide additional evidence for the centrality of attachment issues in trauma survivors' well-being.

The current findings also suggest that, although BPD may primarily be an attachment disorder, it is important to acknowledge the role of trauma in the lives of women diagnosed with BPD (Classen et al., 2006; Herman 1992a, b). For example, Rosewater (1985) argued that the while battered women are frequently diagnosed with BPD, the anger problems, identity disturbances, defensiveness and dependency problems attributed to their disorder need to be considered as understandable within the context of the violent realities of these women.

Although a trauma survivor may present with a cluster of pervasive, treatment-resistant symptoms that suggest an underlying personality disorder, applying the label of a personality disorder may be problematic because it decontextualizes these symptoms. Clinical diagnoses of personality disorders like BPD can result in the misattribution of the symptoms of traumatization to the underlying character of the victim in a way that is stigmatizing (Classen et al., 2006; Herman, 1992a; Becker, 2000). Added to this,

clinicians may be reluctant to treat clients with personality disorders because personality disorders are, by definition, pervasive patterns which are resistant to change (*DSM-IV-TR*, 2000). Moreover, because the symptoms of BPD include affect dysregulation, anger problems and chronic suicidality, it may be one of the least preferred personality disorders to work with. In the opinion of one clinician, "borderline has become the most pejorative of all personality labels, and it is now little more than shorthand for a difficult, angry female client certain to give the therapist countertransferential headaches" (Becker, 2000, p. 423).

The stigma attached to the label of BPD may also have serious legal implications. In this regard Stefan (1998) found that women diagnosed with BPD are frequently considered mentally disabled by the courts in cases of family law, civil commitment and civil rights and, as a result, may be considered unreliable witnesses, involuntarily institutionalized, involuntarily medicated or lose parental/custody rights. Conversely, Stefan (1998) also found that women diagnosed with BPD were not considered sufficiently disabled to qualify for benefits conferred by the law for those with disabilities, like social assistance benefits and anti-discrimination rulings. Thus, locating the cause of survivors' difficulties externally in trauma, rather than within their personality is important so as to avoid making them vulnerable to serious social injustices.

Finally, it is important to emphasize that not all survivors of interpersonal trauma develop the symptoms of DESNOS or BPD. As noted by Allen and colleagues (1998), research into factors that increase resilience to the harmful outcomes of interpersonal trauma is also needed. For example, this study framed attachment as something that

when disturbed could increase symptom severity, but it did not consider potential protective effects of secure attachments or other social support. In addition, research on posttraumatic growth (e.g., Schuetler & Boals, 2011) may answer questions about the outcomes of interpersonal trauma that cannot be explained by research, such as this, which attempts to explain the psychological difficulties associated with trauma.

In sum, this research highlights the important role of attachment in predicting the psychological aftereffects of interpersonal trauma and suggests that attachment is an important consideration in the psychological treatment of trauma survivors.

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