

TRAUMA, TRUST, AND BETRAYAL AWARENESS

by

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## DISSERTATION ABSTRACT

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Women and men who experience early interpersonal violence are at increased risk for subsequent victimization. Little is known about the mechanisms by which early trauma increases vulnerability for revictimization. According to Betrayal Trauma Theory, harm perpetrated by close others early in life may impair the ability to accurately decipher trust and identify betrayal, thus increasing risk for future violation. Dissociation, a state of cognitive, emotional, and experiential disconnectedness, is theorized to facilitate impaired betrayal awareness, and peritraumatic dissociation (i.e., dissociation at the time of a traumatic event) has been linked to revictimization.

The present study extended this existing knowledge and tested predictions made by Betrayal Trauma Theory through the examination of the impact of high betrayal trauma on self-report and behavioral trust tendencies and betrayal awareness in a college sample of 216 individuals with and without histories of trauma high in betrayal. The impact of peritraumatic dissociation on betrayal awareness was examined. Participants

completed self-report measures of peritraumatic dissociation and relational and general trust. The Trust Game, an experimental economics task, was used to investigate behavioral trust. A picture drawn to depict sexual abuse of a child was used as a betrayal stimulus to examine betrayal awareness in the sample.

Results replicated prior work indicating an increased risk for revictimization among individuals who reported high betrayal trauma during childhood and/or adolescence. As predicted, high betrayal trauma exposure was associated with lower levels of self-reported general and relational trust. Self-reported general trust was positively correlated with behavior during the Trust Game. Participants with histories of high betrayal trauma reported higher levels of peritraumatic dissociation when confronted with the betrayal stimulus, and rates of peritraumatic dissociation contributed significantly to betrayal awareness.

The findings of this study suggest betrayal trauma early in life disrupts developing socio-emotional functions, namely the ability to judge trustworthiness. The results provide evidence for the role of peritraumatic dissociation in awareness for betrayal. Despite the preliminary nature of this work, the results represent an important step toward better understanding the long-term consequences of high betrayal trauma, suggesting ways interventions may be tailored to subvert the effects of trauma.

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“He didn’t tell me how to live; he lived, and let me watch him do it.”

–Clarence B. Kelland

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## CHAPTER I

### INTRODUCTION

Violation of a child for the purposes of achieving control, subjugation, or adult gratification is a disturbingly common occurrence. According to federal statistics, during the fiscal year of 2008, 772,000 children were abused or neglected (Child Maltreatment, 2008). The National Center for Victims of Crime estimates 1 in 4 girls and 1 in 6 boys will experience some form of sexual abuse before reaching the age of 18 (National Center for Victims of Crime, 2008). What is perhaps even more alarming than the prevalence of child maltreatment is the fact that this horrific crime is commonly perpetrated by someone the child knows. A recent study found 96% of abused children under the age of 12 knew their abuser (National Center for Victims of Crime, 2008). Childhood abuse that occurs at the hands of a caregiver may be characterized as complex psychological trauma (Courtois, Ford, Kolk, & Herman, 2009). This type of abuse is complex in the sense that there are often multiple occurrences, the abuse contains an element of betrayal, it occurs at a developmentally vulnerable period, and it involves a threat to spiritual and psychological well being in addition to physical safety (Courtois et al., 2009).

#### **Effects of Interpersonal Trauma**

Abuse at the hands of a trusted and depended-upon caregiver often calls into question the child's previous ways of knowing the world, the self, and self in relation to the social environment. Interpersonal childhood trauma shatters important assumptions and requires the child to modify existing beliefs about the self and world (DePrince and Freyd, 2002). According to Betrayal Trauma Theory, childhood abuse high in betrayal requires the child to block awareness of abuse to facilitate continued care from the

perpetrator (Freyd, 1996). Prolonged childhood trauma has been described as “developmentally adverse” (Ford, 2005, p.410) in that it alters secure attachment, a prerequisite for emotion regulation capacities and a healthy sense of self.

According to Bowlby’s attachment theory, a safe and reliable relationship with one’s primary caregiver sets the stage for optimal social, emotional, and identity development (Leim & Boudewyn, 1999). Insecure attachment with the caregiver interrupts identity development because the conceptualization of oneself relies heavily on the child’s perception of the attachment figure’s responsiveness. A previously responsive, nurturing, “safe-base” suddenly becomes unpredictable and dangerous, and the child comes to expect similar treatment in future relationships. The experience of caregiver-perpetrated child abuse shifts the child’s view of himself from valuable, competent, and worthy to insignificant and inept. These maladaptive self-perceptions, lack of attachment security, and shattered assumptions result in a myriad of difficulties that span psychological, social, emotional, and behavioral domains.

Complex psychological trauma activates complex post-traumatic reactions. For each aversive element of an abusive experience, children develop a complimentary coping mechanism that allows for maintenance of attachment to the caregiver. Complex post-traumatic responses are characterized by varying levels of awareness, emotional dysregulation, somatic difficulties, fragmented identity, and relational disturbances (Herman, 1997; Briere & Scott, 2006; Courtois et al., 2009). Each of the domains can contribute to faulty meaning making and revictimization risk in the aftermath of trauma.

Post traumatic coping mechanisms are adaptive in that they achieve the goal of maintaining attachment and receiving fulfillment of basic needs from the caregiver

(Freyd, 1996). However, the residue of child abuse follows the child throughout the remainder of his/her life. Each carefully crafted and well-rehearsed attempt at adaptation becomes maladaptive once the abusive environment is no longer present. However, because the child developed these capacities during key points of development, they are well engrained, automatic, and difficult to modify. In some cases, the maladaptive coping mechanisms amplify survivors' vulnerability to revictimization by other trusted individuals throughout their lives.

### **Revictimization**

Research suggests survivors of childhood trauma high in betrayal are at increased risk for exploitation by intimate partners (Gobin & Freyd, 2009). It is estimated that individuals who initially experience childhood sexual abuse are 4.31 times to 11 times more likely to be victimized later in life (Gobin & Freyd, 2009; Fergusson, Horwood, & Lynskey, 1997). Physical abuse (Schaaf & McCanne, 1998), emotional abuse (Zurbriggen, Gobin, & Freyd, 2010), the combination of physical and sexual abuse (Schaaf & McCanne, 1998), and neglect (Widom, Czaja, & Dutton, 2008) have also been linked to increased risk for sexual and physical victimization later in life for both women *and* men (Balsam, Lehavot, & Beadnell, 2010). The widespread epidemic of revictimization has been replicated in community (Ullman & Najdowski, 2009), college (Messman-Moore & Long, 2000), prison (Dirks, 2004), and veteran (Zinzow, Grubaugh, Frueh, & Magruder, 2008) samples as well as samples that are diverse with regard to ethnicity (Poister Tusher & Cook, 2010) and sexual orientation (Balsam et al., 2010). While a vast majority of studies have been cross-sectional in nature, longitudinal and prospective designs have yielded results confirming the link between childhood

victimization and revictimization in adolescence and adulthood (Widom, Czaja, & Dutton, 2008; Barnes et al., 2009). Thus, the empirical evidence for revictimization is robust.

A number of research studies have examined variables that mediate the relationship between childhood trauma and revictimization. Implicated variables include demographic characteristics and aspects of the initial traumatic experience such as gender (Barnes, Noll, Putnam, & Trickett, 2009; Olafson, 2011); ethnicity (Urquiza & Goodlin-Jones, 1994); disability status (Fluke, Shusterman, Hollinshead, & Yuan, 2008); relationship to perpetrator (Freyd, 1996); severity of abuse (Briere & Jordon, 2004); and frequency of abuse (Kessler & Bieschke, 1999). Psychological outcomes, behavioral factors, and emotional consequences of childhood trauma have also been found to contribute to vulnerability for victimization, including post-traumatic stress (Ullman, Najdowski, & Filipas, 2009); affect regulation difficulties (Cloitre & Rosenberg, 2006); dissociation (DePrince, 2005); maladaptive forms of coping (Macy, 2007; Walsh, Fortier, & DiLillo, 2010); and self-blame and guilt (see Messman-Moore & Long, 2003).

Overall, the above findings suggest that revictimization is a problematic consequence of early childhood interpersonal trauma that is alarmingly prevalent. Initial experiences of childhood abuse occur prior to complete maturity of affective, interpersonal, and cognitive capacities, thus interfering with the development of these critical skills. The very coping strategies that developmentally vulnerable children use are both a blessing and a curse; they help the child survive, yet create vulnerabilities for future exploitation. The literature suggests revictimization exacerbates the effects of prior abuse experiences yielding higher rates of depression, dissociation, and PTSD (see

Classen et al., 2005). Given the potential for long-term health consequences and the implicit ways in which vulnerability develops, it is important to gain a deeper understanding of the ways that early childhood trauma creates vulnerabilities for later abuse. An enhanced understanding of these mechanisms will inform intervention efforts tailored specifically for survivors of early interpersonal trauma. The current study will investigate the impact of early childhood trauma on two socio-emotional factors (i.e., trust tendencies and betrayal awareness) that may be wounded as a result of abuse by a known perpetrator, thus increasing risk for future victimization.

### **Betrayal**

Many instances of childhood abuse involve betrayal. Betrayal has been predicted to have a significant impact on cognitions (e.g., negative attributions for perpetrator's behavior), affect (e.g., sadness), and behavior (e.g., demands for retribution).

Interdependence theory suggests the natural human reaction to betrayal is self-oriented and focused on retribution rather than forgiveness (Finkel, Rusbult, Kumashiro, & Hannon, 2002). However, the theory suggests innate impulses for retribution do not always result in withdrawal from the perpetrator or acts of vengeance. Instead, a process termed "transformation of motivation" allows one to resist self-centered impulses in the service of long-term goals, personal values, and perpetrator well being (Finkel et al., 2002).

In line with the concept of "transformation of motivation", Betrayal Trauma Theory (Freyd, 1996) suggests individuals cope with traumatic betrayals by blocking awareness for the betrayal from conscious awareness via dissociation, a state of cognitive, emotional, and behavioral disconnection (American Psychiatric Association

[DSM-IV-TR], 2000). This cognitive blockage allows the dependent individual to persist in critical attachment bonds. While it is adaptive in abusive contexts, overutilization of dissociation and betrayal blindness can increase vulnerability for victimization in later relationships.

Early experiences of victimization that involve high levels of betrayal also can disrupt normal socio-emotional development. Trauma rewires the developing brain and shifts attention from exploration and development to survival (Ford, 2009). The survival-oriented sympathetic nervous system becomes preoccupied with identifying and anticipating threat, while the parasympathetic nervous system is prevented from functioning to conserve energy (Ford, 2009). The constant state of arousal and the amount of energy utilized by the sympathetic nervous system limits the effectiveness of other brain systems that are primarily concerned with knowledge acquisition (Ford, 2009). Early emotional development is sacrificed for vigilance and defense against external threats (Ford, 2009).

## **Trust**

In instances of abuse perpetrated by close others, betrayal is closely related to trust. Betrayal violates previously held notions about trust. Trust has been described as a decision that “permeates the interface between people and their social environments” (Jones, Couch, & Scott, 1997, p. 468). In nearly every social environment encountered, individuals must grapple with the costs and benefits of displaying some level of vulnerability and having faith in the benevolence of another, which opens the door to betrayal.

There are two schools of thought regarding the concept of trust. Most early scholars were interested in evaluating generalized willingness to trust others. As such, trust was defined as a universal expectancy that others can be relied upon (Rotter, 1967; Evans & Revelle, 2008). From this point of view, the global expectations people have regarding the motives and reliability of others is central to trust (Jones, Couch, & Scott, 1997). It was theorized that this expectation is developed based on generalizations from past experiences (Couch & Jones, 1997). Essentially, trust was seen as a personality characteristic that was relatively stable across situations and individuals. Rotter's (1967) interpersonal trust scale was one of the first scales generated to measure trust in others based on a global expectancy.

Lately, researchers have advocated for a distinction between general trust attitudes and trust in a specific other (i.e., relational trust) (e.g., Johnson-George & Swap, 1982). Theorists have argued a one-dimensional conceptualization of trust lacks consideration for the role of higher-level cognitive processes and affect in trust decision-making (Jones et al., 1997). Jones, Couch, and Scott (1997, p. 470) define relational trust as "the motivation and ability to permit oneself to become vulnerable to others through the development of the relationship." This definition suggests the decision to trust intrinsically involves a willingness to become vulnerable to betrayal. Johnson-George and Swap (1982) developed a measure of relational trust to acknowledge the influence of the target of trust as well as the situation under which trust must be granted. Theorists have suggested both general and relational trust decisions involve affective and cognitive components; however, relational trust decisions may rely more heavily on feelings (Morrow, Hansen, & Pearson, 2004).



Sorrentino, Holmes, Hanna, and Sharp (1995) assert feelings of vulnerability, which are made salient when one decides to trust, automatically lead to uncertainty. Researchers have sought to understand the ways people attempt to reduce ambiguity. Holmes and Rempel (1989) suggest ambivalence surrounding trust is reconciled or lessened through the process of uncertainty reduction. Uncertainty reduction is a hypothesis testing procedure whereby individuals judge relational partners' predictability, dependability, and attachment. Once an individual has gained some confidence in his/her partner's behavioral consistency (i.e., predictability and dependability), attention turns to developing explanations for behavior and making attributions. It is not only important that a partner behaves in a consistent and predictable manner, but it is equally important that reasons behind consistent behaviors are interpreted as reflecting genuine care, attachment, and investment in relationship. According to Holmes and Rempel (1989) trust necessitates that the relational partner's behaviors are interpreted as reflecting his/her disposition as a person who is dependable and committed to the relationship. Growth of trust depends on the willingness of both relational partners to demonstrate caring by taking risks, displaying emotional vulnerability, and sacrificing self-interests in the service of responding to partners' needs because these actions demonstrate reliable character as well as commitment.

Changes in trust over time can be driven by experiences of violation and validation of trust. Within a given relationship, the potential for trust to increase in depth and breadth depends on the frequency, duration, and diversity of experiences that either validate or disconfirm confidences in positive or negative expectations (Lewicki, Tomlinson, & Gillespie, 2006). Assessments of trustworthiness can also change as a

function of deepened intimacy and knowledge of another's personality, preferences, and values. Based on the literature reviewed above it is reasonable to assume that the uncertain and unpredictable circumstances of abusive environments prevent the maturation of trust.

### **The Impact of Betrayal Trauma on Trust**

Some theorists propose early trauma impacts trust capacities through the disruption of attachment that accompanies acts of betrayal by trusted others. Ideally, children learn to trust early in the confines of a nurturing, safe, and loving relationship with the caregiver. According to Erickson, the basic foundation of a child's personality begins in the first year of life when he/she is confronted with the psychosocial dilemma of trust versus mistrust (Weiten, 2007). Based on his/her interactions with his/her caregiver(s), the infant develops an understanding of the world as either safe and predictable or dangerous and inconsistent. A sense of security develops following repeated experiences with a responsive, attentive, warm, and predictable caregiver. This early relational foundation lays the groundwork for healthy identity development. As the child matures he/she internalizes the confidence, encouragement, and regulatory strategies of the primary attachment figure (Middelton-Moz, 1989).

In the aftermath of trauma, the victimized child becomes uncertain about self in relation to the world and others, and learns that dependence is synonymous with vulnerability to pain. The lack of felt security with the primary caregiver facilitates the development of an insecure attachment style. This insecure attachment may be categorized as disorganized, avoidant, or anxious/ambivalent based on the child's response to his caregiver's inconsistency. A disorganized attachment style is

characterized by uncertainty about the reliability of others that results in confusion regarding approach and avoidance of the attachment figure (Weiten, 2007). Anxious-ambivalent attachment patterns are characterized by intense separation anxiety and preoccupation with sustaining closeness to the attachment figure. Individuals who have avoidant attachment styles have a defensive demeanor; they are uncertain about the intentions of others and protect themselves by avoiding close intimate contact (Mikulincer, 1998).

Attachment patterns continue to exert influence in the child's life well beyond his/her relationship with the primary caregiver. In particular, the quality of attachment impacts trust dynamics in future close relationships. Securely attached individuals learn others can be relied upon and trusted while insecurely attached individuals perceive others as inconsistent and undependable. Attachment working models have been posited to guide the manner in which people appraise, process, and react to trust-related experiences in relationships (Mikulincer, 1998).

Mikulincer (1998) found evidence that early attachment working models differently impact the goals individuals pursue in social interactions later in life. Individuals with differing attachment styles were probed about the personal benefits they have received from trusting others in the past. While secure individuals were more likely to report increased intimacy as a benefit of trust in intimate relationships, avoidant persons noted control attainment most frequently whereas ambivalent persons tended to report security gains. Similar results were found regarding strategies used to cope with violations of trust. Because their needs have been met successfully, securely attached individuals learn they can rely on others and dependence on others is rewarding. This

positive experience fosters the desire to be intimate with others. The authors suggest securely attached individuals trust others in order to achieve enhanced intimacy. Insecurely attached individuals associate attachment with pain and disappointment; consequently they learn to develop defenses against the distress they have come to believe is inherent in close relationships (Mikulincer, 1998). Thus, goals for interpersonal interaction among insecurely attached individuals were increased security and attainment of control.

Overall, these results suggest betrayal impacts trust through the disruption of the attachment relationship, which creates a glass ceiling for trust capacities. Mikulincer (1998)'s findings suggest survivors of betrayal develop rigid trust patterns in an attempt to satisfy needs that were never fulfilled by the early attachment relationship. Betrayal may also impact trust by resulting in an extreme willingness to trust others. Zurbriggen and Freyd (2004) suggest traumatic betrayals damage cognitive mechanisms that allow individuals to accurately judge the trustworthiness of another. It is possible that this deficit could result in trusting untrustworthy persons, thus increasing risk for further violation.

While many have theorized, from a developmental perspective, about the impact of trauma on the capacity for trust (e.g., Finkelhor & Browne, 1985; Cole & Putnam, 1992; van der Kolk, 1996), few empirical studies exploring trust tendencies among adults with histories of high betrayal trauma exist (e.g., Lau & Kristensen, 2010; Jurgens, 2005; DiLillo & Long, 1999). The few investigations that exist in this area support the hypothesis that early betrayal trauma results in high levels of distrust. Given these findings, it is curious that such a high revictimization rate exists. Revictimization

theories suggest emotional, cognitive, and behavioral styles of coping with abuse mediate the relationship between early trauma and revictimization (e.g., dissociation, maladaptive schemas, substance abuse) (for a review see Arata, 2002). Might survivors of high betrayal trauma trust individuals who are unworthy of trust, thus increasing revictimization risk? Prior investigations exploring trust in participants with histories of abuse have relied solely on self-report methods, which may or may not accurately reflect behavioral trust tendencies in intimate partnerships. Using self-report and behavioral methods, the present study will examine general trust tendencies as well as trust in romantic partners in order to gain a clearer understanding of the impact of early high betrayal trauma on trust.

### **Trauma and Betrayal Awareness**

Research evidence suggests humans have an evolved cognitive defense that allows for the detection of cheaters with astute precision (Cosmides, Barrett, & Tooby, 2010). However, theorists have suggested early adverse experiences may subvert this biologically wired propensity and disrupt developing patterns of thought regarding interpersonal interactions (Freyd, 1996; Briere & Jordon, 2004). Two such processes that have received increased attention are awareness for and response to violations of interpersonal norms (e.g., betrayals). Previous research has shown survivors of childhood abuse often demonstrate deficits in their ability to recognize potential danger in interpersonal interactions (Marx, Calhoun, Wilson, & Meyerson, 2001; Soler-Baillo, Marx, & Sloan, 2005; Meadows, Jaycox, Stafford, Hembree, & Foa, 1995). Theorists have suggested the inability to identify danger cues makes it difficult for individuals with histories of interpersonal victimization to avoid future victimization.

In an examination of the impact of risk recognition on revictimization risk Wilson, Calhoun, & Bernat (1999) exposed three groups of women (revictimized childhood sexual abuse survivors, one-time sexual assault victims, and non-abuse victims) to an audiotape vignette depicting a heterosexual couple on a date that ends in rape. The women were instructed to press a specific button on a computer keyboard when they believed the man in the vignette had “gone too far.” Revictimized women took significantly longer than one-time and non-abuse participants to recognize the woman in the vignette was in danger of being sexually assaulted. Specifically, revictimized women tended to wait until the point in the interaction when the man’s verbal threats had intensified and the woman’s continual adamant refusals had gone ignored (Wilson, Calhoun, & Bernat, 1999). In this sample, PTSD symptomatology acted as a protective factor such that women who reported high levels of hyperarousal cluster symptoms showed shorter response latencies.

Using a similar audiotape date rape vignette and methodology with a sample of women with victimization histories, Marx, Calhoun, Wilson, & Meyerson (2001) showed women who reported rape during a two month follow-up period had poorer risk recognition during the time of the study than women who did not report revictimization. Soler-Baillo, Marx, and Sloan (2005) showed differences in physiological response to an audiotaped date rape interaction between victims and nonvictims of sexual assault. Participants without a history of sexual assault identified risk quicker than victims and showed increased heart rate during earlier segments on the vignette when interactions between the couple were ambiguous. While victims of sexual assault displayed decreased heart rate during moments of ambiguity, self-reported responses indicated they found the

vignette significantly more unpleasant and arousing than participants without a history of victimization. The authors contend the initial elevated heart rate is critical to assessing risk for sexual assault because it allows survivors to be more vigilant when threat related information is vague.

Connections between poor risk recognition and previous victimization have also been demonstrated with written vignettes (e.g., Yeater, Treat, Viken, & McFall, 2010). Yeater and colleagues (2010) found a relationship between victimization history and poor risk detection in an exploration of the cognitive processes underlying risk judgments among a diverse sample of undergraduate women. The researchers found women with more severe histories of victimization were less likely to view vignettes involving danger of sexual assault as risky compared to participants with less severe histories of victimization. Based on this result, the researchers suggest women with victimization histories have a higher decisional threshold for risk evaluations, which increases risk for revictimization. They also found that participants with more severe victimization histories tended to pay attention to popularity repercussions (as opposed to risk relevant information) when evaluating vignettes for level of risk and were more likely to accept rape myths. Participants with higher rape myth acceptance tended to rely less on victimization risk information when evaluating vignettes. The results suggest that distracting contextual information may impair the ability to recognize risk among women with histories of victimization.

Using a college sample, DePrince (2005) explored the impact of revictimization on ability to detect violations of abstract, social exchange, and precautionary rules. Results indicated revictimized participants had more difficulty detecting violations of

social exchange and precautionary rules compared to their nonrevictimized counterparts. Pathological dissociation was predictive of errors on both rules.

### **Mechanisms of Poor Betrayal Awareness**

Taken together the research reviewed above suggests that early childhood trauma is associated with poor risk detection because individuals with histories of victimization may process threat and personal safety-related information through a dissociative lens, leading them to recognize risk when it is too late to escape the situation. A number of researchers have suggested dissociation impairs threat detection in persons with histories of early trauma. According to Cloitre and Rosenberg (2006, p. 326) dissociation may be defined as "...an experience in which the individual is cognitively and emotionally removed from the current circumstance and has reduced or no available memory for it." Cloitre and Rosenberg (2006) suggest survivors of early interpersonal trauma may exhibit poor risk detection due to unawareness of the environment. Chu (1992) theorized dissociative states contribute to poor threat detection via cognitive and affective mechanisms. Chu (1992) proposed dissociation prevents learning from previous victimization experiences because memories are often fragmented and, thus, unsuccessful in signaling potential threat. Moreover, Chu (1992) suggested dissociation might impair the ability to detect risk due to disconnection with emotional states that indicate the presence of danger.

Alexithymia, a condition involving difficulties identifying and labeling the emotional states of oneself and others, may also contribute to poor risk detection (Cloitre & Rosenberg, 2006). Cloitre et al., (1997) found women first victimized in childhood were more likely to report alexithymic symptoms than women first assaulted in



adulthood. Cloitre & Rosenberg (2006) contend difficulty reading the emotional cues of potential perpetrators and distinguishing among negative affective states is a form of impaired threat detection that may inhibit effective behavioral responses. An alternative view posits the difference between individuals with and without victimization histories lies not in their ability to recognize risk, but how quickly they respond in self-protective ways once risk has been established.

### **Behavioral Response to Risk**

Despite the aforementioned findings suggesting threat detection is impaired by childhood trauma high in betrayal, there is empirical evidence that suggests behavioral response may be a more salient consequence of childhood trauma than risk recognition (e.g., Messman-Moore & Brown, 2006). Some researchers have shown no differences between women with and without victimization histories in risk detection (e.g., Yeater and Donohue, 2002). For example, among a sample of treatment seeking women diagnosed with posttraumatic stress disorder, Meadows, Jaycox, Stafford, Hembree and Foa (1995) found no relationship between sexual or physical assault history and risk detection. Others have found behavioral response to be more predictive of revictimization than risk detection (Messman-Moore & Brown, 2006). Messman-Moore and Brown (2006) used two written vignettes depicting a date scenario that ended in forced sexual intercourse perpetrated by either a familiar or unfamiliar male to examine differences in threat detection and behavioral response among college students. Participants were asked to indicate when they would feel uncomfortable if they were interacting with the male in the scenario as well as when they would leave the situation. The researchers found women with childhood victimization only, reported feelings of

discomfort in the acquaintance date rape scenario significantly earlier than revictimized women, women who only experienced adult sexual assault, and women without a history of victimization. Revictimized women reported feeling uncomfortable *and* leaving both stranger and acquaintance date rape scenarios significantly later than women without victimization histories. Delayed behavioral response to the vignettes and prior victimization predicted revictimization and rape (for participants without a history of victimization) during the 8-month follow-up period. Risk detection was not associated with risk for subsequent victimization.

Meadows, Jaycox, Orsillo, and Foa (1997) used vignettes to examine the relationship among risk detection, response to risk, and sexual assault history. College women with a history of sexual assault indicated they would leave the situations that included interpersonal threat later than participants without histories of sexual assault (Meadows et al., 1997). However, sexual assault survivors did not differ from those without a history of sexual assault in terms of threat detection. In another sample of college women, Yeater, McFall, and Viken (2011) evaluated the impact of victimization history, sexual activity, and alcohol use on behavioral response to 44 written vignettes. When asked to indicate how they would respond in each scenario, women with severe victimization histories reported less effective response strategies than nonvictimized women as the presence of alcohol and sexual activity increased in the vignettes.

Similarly, Vanzile-Tamsen, Testa, and Livingston (2005), found evidence in support of the claim that behavioral response, rather than risk detection, is impaired by early trauma. The researchers explored the impact of sexual abuse history on threat appraisal and responses to unsolicited sexual advances in a sample of women using a

written scenario in which participants were asked to imagine a male surprisingly approaching them from behind. Participants were asked to rate the degree of risk they perceived as well as their intentions to respond to the male's actions. Type of perpetrator was manipulated in the study. Intimacy with a potential perpetrator (i.e., whether he was someone the participant had just met, a friend, date, or boyfriend) significantly impacted the participants' risk judgments such that greater intimacy was related to lower risk appraisals. The researchers found perception of risk mediated the relationship between relationship with perpetrator and behavioral response such that when the male was an acquaintance women reported lower perceptions of threat and reported intentions to use indirect resistance strategies. Although a direct relationship between victimization history and risk detection was not observed, women who reported victimization scored lower on a measure of sexual refusal assertiveness and showed a greater reliance on indirect resistance (e.g., verbal refusals). Based on these findings, the researchers suggest concerns for maintaining a relationship may prevent women from responding assertively to unwanted sexual advances.

### **Mechanisms of Ineffective Behavioral Response**

Given the potency of the connection between behavioral response to perceived risk and victimization history, researchers have become concerned with the factors that impact survivors' ability to protect themselves in the face of a potentially dangerous situation (Nurius, Norris, Dimeff, & Graham, 1996). The social context and cognitive processes have received much attention in recent years. Specifically, researchers have shown that women's expectancies for victimization are contingent upon whether the perpetrator is a partner or stranger (Littleton, Tabernick, Canales, Backstrom, 2009).

Among a sample of undergraduate females, Littleton and colleagues (2009) showed that rape is typically thought of as a violent encounter that is perpetrated by a stranger. The rape scripts held by college women are a stark contrast from recent findings suggesting less than 10% of sexual assaults reported by undergraduate women are perpetrated by strangers and involve use of violent force (Littleton, Radecki, & Breitkopf, 2006). These results have prompted theorists to suggest women's ways of thinking about perpetrators of interpersonal victimization influence their views about how susceptible they are to harm and determine methods of responding when threat cues are present (Nurius, Norris, Dimeff, & Graham, 1996; Vanzile-Tamsen, Testa, & Livingston, 2005).

Another factor affecting women's ability to protect themselves that has received considerable empirical attention is the effective use of and types of resistance strategies typically relied on by victims. Specifically, a previous history of victimization has been consistently associated with a tendency toward indirect and nonassertive strategies (e.g., Norris, Nurius, & Dimeff, 1996; VanZile-Tamsen, Testa, & Livingston, 2005). Several contextual (e.g., perpetrator aggression, alcohol use) and personal factors (e.g., feelings of self-consciousness, concerns about injury, stated intentions or plans to use a specific strategy) have been shown to determine the types of resistance strategies women tend to use when refusing unwanted sexual advances (see Gidycz, Van Wynserghe, & Edwards, 2008). Theorists suggest learned helplessness facilitates passive styles of responding (for a review see Messman & Long, 1996).

In addition to the contextual and individual level factors that influence risk recognition and behavioral response, there has been some attention paid to disrupted relational schemas. Cloitre and Rosenberg (2006) suggest the developmentally

vulnerable time during which abuse occurs leads to maladaptive views of self and other. Specifically, attachment to the caregiver is maintained through interpersonal schemas that emerge in the context of abuse. Thus, the child comes to associate abusive behaviors with emotional and physical connection. This distorted schema serves as a template that guides behaviors in future relationships. Moreover, Cloitre and Rosenberg (2006) assert early childhood abuse disrupts the developing sense of self through feelings of shame. They suggest shame may lead to feelings of helplessness and beliefs about the self as incompetent to act in self-protective ways in future high-risk situations. Browne and Finkelhor (1986) have also theorized about the impact of early abuse on interpersonal schemas. According to Browne and Finkelhor (1986), the experience of childhood sexual abuse is associated with four traumagenic dynamics (one of which is betrayal) that challenge previously held beliefs about healthy relationships. The betrayal inherent in early abuse experiences perpetrated by close others blurs the distinction between trust and betrayal and violates previously held expectations about care and safety. A consequence of this violation is an impaired ability to assess the trustworthiness of others (Zurbriggen & Freyd, 2004; Arata, 2000).

### **Dissociation**

Abusive contexts are incompatible with emotional maturation. Reduced to the goal of simple survival, individuals in abusive environments are not afforded opportunities to develop capacities in identifying and distinguishing between affective states, emotion regulation, and healthy distress tolerance. In abusive contexts, emotion dysregulation promotes survival in that it functions to mask signals of internal distress and continual autonomic arousal and aids in rapid environmental scanning for signs of

danger (Herman, 1997). Dissociation is a type of emotion dysregulation that has been identified in survivors of early interpersonal trauma.

The American Psychiatric Association defines dissociation as “a disruption in the usually integrated function of consciousness, memory, identity, or perception of the environment” (American Psychiatric Association, 2000, p. 519). Dissociation can involve amnesia for personal experiences, confusion about personal identity and details of past experiences, a sense of a fragmented identity, and feelings of disconnection from one’s own body. For a victim who is dependent on a perpetrator of abuse, awareness presents serious danger to survival (Freyd, 1996). Awareness is contraindicated because it could result in actions that threaten attachment bonds. Therefore, trauma related information must be blocked from conscious awareness through the use of cognitive processes such as dissociation, which allows the child to *not know* about abuse.

DePrince and Freyd’s (1999) work exploring attentional processes among trauma survivors implies dissociation is a cognitive environment in which reduced awareness is achieved by remaining in a continuous state of divided attention. Multitasking is a coping mechanism used by survivors of trauma that controls the flow of betrayal trauma related information into conscious awareness. Depending on the context and situation this can be adaptive or maladaptive.

Individuals become skillful at suppressing physiological arousal and negative affect to appease the perpetrator in abusive environments (Herman, 1997). Outside of the context of abuse, however, lack of integration among mental activity, affective states, and conscious awareness is maladaptive because it results in fragmented memories and identity. Moreover, dissociation creates disconnection between internal emotional states

and outer expression. Failure to fully process traumatic memories can lead to persistent overwhelming and disturbing intrusive memories and flashbacks. Such seemingly uncontrollable occurrences often lead to experiential avoidance, which worsens traumatic distress and interferes with recovery from trauma.

### **Dissociation and Trust**

Due to its role in ensuring survival, Freyd (1996) suggests trust is at the heart of attachment. Evolutionary theorists have identified the evolutionary benefits to accurate and effective trust judgments or *cheater detection* (Cosmides & Tooby, 1992). However, Betrayal Trauma Theory suggests responding to trauma perpetrated by a trusted individual (e.g., a caregiver) in a confrontational manner is counterintuitive and threatens the susceptible victim's survival. According to the theory, betrayal blindness (i.e., turning off the inborn cheater detector) allows for uninterrupted attachment, and thus, guarantees survival. Freyd (1996) suggests dissociation facilitates betrayal blindness. According to Zurbriggen and Freyd (2004), suppressing the inborn cheater detector (through the use of dissociation) for prolonged periods can interfere with the ability to accurately perceive the extent to which others are worthy of trust. Based on this framework, the present study will explore the role of dissociation in judging trustworthiness following a betrayal.

### **Peritraumatic Dissociation**

Researchers have suggested dissociation inhibits recovery from trauma through interference with attentiveness to environmental cues (see Chu, 1992). Indeed, as discussed earlier, heightened levels of dissociation have been observed in survivors of abuse and dissociative processes have been linked to revictimization among survivors of

child sexual abuse (for a review see Classen et al., 2005; Noll, Horowitz, Bonanno, Trickett, & Putnam, 2003). Moreover, empirical evidence suggests dissociation may impair social cognitive processes that promote awareness for violations (e.g., DePrince, 2005).

Researchers have made a distinction between dissociation that occurs at the time of or immediately following a traumatic experience (i.e., peritraumatic dissociation) and the frequency of dissociative experiences in one's daily life. Much of the research exploring the link between dissociation and trauma has examined the relationship between dissociation and PTSD. While there is evidence suggesting both forms of dissociation (i.e., dissociation at the time of a trauma and frequent dissociative experiences in daily life) predict the severity of posttraumatic distress (e.g., Abdollahi, Maxfield, Pyszczynski, & Luszczynska, 2011; Griffin, Resick, & Mechanic, 1997), some researchers have asserted peritraumatic dissociation is not a reliable predictor of distress in the aftermath of trauma (e.g., Briere, Scott, & Weathers, 2005). Using a community sample, Briere and colleagues (2005) found peritraumatic dissociation ceased to predict PTSD once generalized dissociation was included in the model. Based on these results the researchers suggest dissociation at the time of a trauma is not as harmful as persistence in dissociation once the traumatic stressor is no longer present. Other researchers have reported similar findings (e.g., see Cardena & Carlson, 2011). However, these results contradict the findings of meta analyses that identify peritraumatic dissociation as the most potent predictor of PTSD (e.g., Ozer, Best, Lipsey, & Weiss, 2003; Lensvelt-Mulders, van der Hart, van Ochten, van Son, Steele, & Breeman, 2008). Finally, empirical evidence suggests physical and cognitive symptoms of panic mediate



the relationship between trauma induced fear, helplessness, and horror and peritraumatic dissociation (Fikretoglu, Brunet, Best, Metzler, Delucchi, Weiss, Fagan, Liberman, & Marmar, 2006).

### **Peritraumatic Dissociation and Betrayal Awareness**

While results are mixed regarding the role of peritraumatic dissociation in PTSD, few researchers have explored the impact of dissociation at the time of a trauma on awareness for threat or betrayal. Griffin and colleagues (1997) found an association between peritraumatic dissociation and autonomic response among a sample of women with histories of rape. Women categorized as high dissociators displayed suppressed autonomic responses, yet self-reported high levels of distress while describing the rape experience. While this work suggests peritraumatic dissociation plays a role in physiological response to perceived threat, it is limited in two distinct ways. First, measures of peritraumatic dissociation were completed retrospectively (i.e., two weeks after the traumatic event). Two weeks later, it is possible participants under or overestimated the extent to which they dissociated at the time the rape occurred. Secondly, the researchers did not examine the impact of peritraumatic dissociation on the ability to identify or behaviorally respond to perceived threat or betrayal.

In an examination of the physiological responses of female sexual assault survivors to threat cues, Hetzel-Riggin (2010) found an association between high levels of peritraumatic dissociation and heightened physiological responding (i.e., higher skin conductance and heart rate). Moreover, the presence of PTSD impacted the effect of threat cues on participants' physiological responses. Specifically, compared to participants who self-reported high levels of peritraumatic dissociation, but did not

endorse clinically significant post traumatic stress disorder symptoms, women who reported high levels of peritraumatic dissociation coupled with PTSD displayed higher physiological responses during exposure to a script involving sexual assault. However, when a non-trauma related fearful script was presented, women without PTSD who reported high peritraumatic had the strongest physiological reaction. In line with previous research, Hetzel-Riggin (2010) concluded her findings suggest that peritraumatic dissociation aids in detection of and response to general threat when PTSD is not present. However, when coupled with PTSD, peritraumatic dissociation creates an attentional bias whereby individuals are more attuned to trauma-related threat cues. Similar to Griffin et al.,'s (1997) study, in Hetzel-Riggin's (2010) investigation betrayal awareness was conceptualized as physiological reactivity, however, physiological reactivity may not indicate conscious awareness for threat. Moreover, peritraumatic dissociation was measured retrospectively and participants were not asked to *voluntarily* indicate their level of awareness for betrayal. The present study will explore the impact of peritraumatic dissociation on the ability to detect betrayal.

### **Betrayal Trauma, Trust, and Betrayal Awareness**

Betrayal Trauma Theory identifies two social and emotional processes (i.e., poor betrayal awareness and distorted perceptions of trust) that might be damaged as a result of early high betrayal trauma and, in turn, increase risk for future victimization. Betrayal Trauma Theory (Freyd, 1996) suggests revictimization risk stems from damaged trust mechanisms that result in inaccurate evaluations of interpersonal trust and less awareness for betrayal in adolescence and adulthood (Zurbriggen & Freyd, 2004). Failures to accurately detect betrayal and evaluate the trustworthiness of others can gravely impair

one's ability to recognize risk. Since dissociation is a defense mechanism that "clouds perceptions, interferes with how information is processed, and prevents accurate recall of past traumatic events" (Sandberg, Matorin, & Lynn, 1999, p.129), the present author hypothesizes peritraumatic dissociation will contribute to poor betrayal recognition among survivors of early trauma involving high levels of betrayal. It is also hypothesized that dissociation will impact trust judgments.

Gobin and Freyd's (2009) results suggest betrayal contributes to impaired risk detection. The researchers found an association between the experience of traumas high in betrayal (such as childhood sexual, physical, or emotional abuse by someone emotionally close to the child) and subsequent awareness for betrayals in interpersonal contexts. Specifically, the researchers found that survivors of high betrayal traumas reported lower levels of awareness for infidelity in their romantic partnerships when compared to participants without high betrayal trauma histories. Moreover, there was an association between high betrayal trauma history and response to interpersonal betrayals in adulthood such that high betrayal trauma survivors were more likely to report remaining in a relationship following a betrayal of trust. Based on these findings, Gobin and Freyd (2009) concluded decreased awareness for betrayals and remaining in relationships with disloyal partners may heighten revictimization risk. The current study is a natural extension of Gobin and Freyd 's (2009) work.

### **Current Study**

The present cross-sectional study was planned to explore differences in both willingness to trust and betrayal awareness among participants with and without early high betrayal trauma. A major goal of this study was to extend previous research (Gobin

& Freyd, 2009) by further evaluating the nature of the impact of trauma high in betrayal on trust tendencies and betrayal awareness. The current study, using both self-report and behavioral measures, was planned as a preliminary stage of a program of research. This research was anticipated to inform future longitudinal investigations that can identify causal relationships among trauma, its sequelae, and revictimization risk, thus informing intervention studies. The current study extends previous research on the consequences of early interpersonal trauma through the use of an economics experimental paradigm involving money transfers to investigate the unique impact of early trauma on trust and betrayal awareness.

Researchers have used the Trust Game to explore general trust. Experimental economists Berg, Dickhaut, and McCabe (1995) developed the Trust Game in order to examine the role of trust in economic systems and the factors that make trust more or less likely. A basic economics assumption maintains that human behavior is motivated by self-interest. The researchers were interested in exploring circumstances under which self-interested behavior is not advantageous. The Trust Game involves the exchange of money between two anonymous partners (i.e., a truster and a trustee). In the first phase of the Trust Game, the truster is invited to transfer an integer amount of his/her \$10 research reward to the trustee. Prior to playing the Trust Game, both participants are informed that any dollar amount sent will be tripled once it reaches the trustee's account. After the initial transfer, the trustee is invited to send a portion of the tripled money back to the truster. Following this transfer, payments are made to the truster and the trustee based on the decisions made during the Trust Game.

Since its development, other researchers have used the Trust Game to examine neural mechanisms of trust (e.g., Baumgartner, Heinrichs, Vonlanthen, Fischbacher, & Fehr, 2008), the role of oxytocin in trust (e.g., Zak, Kurzban, & Matzner, 2004; Zak, 2008; Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005), the impact of demographic factors on trust decisions (e.g., Glaeser, Laibson, Scheinkman, & Soutter, 2000) and the impact of personality traits (Evans & Revelle, 2008) and psychopathology on cooperation and trust (King-Casas, Sharp, Lomaz-Bream, Lorenz, Fonagy, & Montague, 2008). Despite research evidence suggesting a positive correlation between self-reported trust and actions during the Trust Game (e.g., Evans, 2008; Baumgartner et al., 2008), some researchers have suggested self-reported measures of past trusting behavior are better correlates of Trust Game behavior than measures of general trust attitudes (Glaeser et al., 2000). Therefore, one goal of the current study was to examine the relationship between self-reported general trust and trust displayed during the Trust Game.

Previous research suggests the Trust Game is an effective method for exploring trust and cooperative behavior (e.g., Berg, Dickhaut, & McCabe). The present study was concerned with the ways that early adverse experiences may cause disturbances in trust judgments. It was predicted that behavior during the Trust Game would provide a glimpse into the trust decisions participants make in real life relationships that may involve risk for revictimization. Thus, the Trust Game was used in the present study to explore differences in willingness to trust among participants with and without histories of trauma high in betrayal.

Betrayal awareness in the current study was explored using a drawing intended to depict sexual abuse of a young child. Drawn by an amateur artist, the Ambiguous

Interpersonal Relationship (AIR) I Drawing (referred to as Threat in Lindblom and Carlsson's (2001) investigation) was first used by Lindblom and Carlsson (2001) to investigate whether a picture drawn to depict child sexual abuse would be interpreted as such. The researchers also explored the role of anxiety in interpreting child sexual abuse in the drawing. Participants were given unlimited time to view the picture and were asked to provide a free response describing the content and meaning of the picture. Lindblom and Carlsson's (2001) investigation (aside from pilot studies to test the content validity of the drawing) was the first to use a drawing to examine detection of sexual victimization. Their results suggest the picture is effective; three-fourths of participants in the first of three experiments saw child sexual abuse in the picture. The aim of the present investigation was to explore the impact of trauma history on awareness for betrayal. Given that child sexual abuse is a form of betrayal, the AIR I drawing was used as a betrayal stimulus to examine this relationship.

### **Hypotheses**

Separate hypotheses were developed for expected outcomes with regard to revictimization, trust, and betrayal awareness. The experience of high betrayal trauma early in life was expected to be associated with high betrayal trauma later in life. Moreover, it was estimated that patterns of trust and betrayal awareness would differ between participants with and without histories of early interpersonal trauma perpetrated by close others. Group comparison and regression analyses were planned to investigate the research questions and hypotheses outlined below. The hypotheses listed below are grouped into three categories: trauma and revictimization hypotheses, trust hypotheses/research questions, and betrayal awareness hypotheses/research questions.

## **Trauma and Revictimization Hypotheses**

1. High betrayal trauma experienced during childhood was expected to be associated with increased risk for adolescent and adult high betrayal trauma victimization.
2. Adolescent high betrayal trauma (both adolescent onset high betrayal trauma and adolescent high betrayal trauma that was preceded by childhood high betrayal trauma) was expected to be associated with increased risk for high betrayal trauma victimization during adulthood.

## **Trust Research Hypotheses and Questions**

### *Hypotheses*

1. Survivors of high betrayal trauma were expected to exhibit extreme interpersonal trust tendencies (i.e., transfer very low or very high amounts) during the trust game compared to participants who did not report the experience of high betrayal trauma.
2. High betrayal trauma survivors were expected to self-report lower interpersonal trust tendencies (general and relational trust) than participants without a history of high betrayal trauma.
3. High betrayal trauma survivors were expected to exhibit rigid trust tendencies (i.e., agree to play a second round of the trust game after being notified their partner only returned \$1).
4. Participants who do not report feelings of betrayal in response to their partner's action (i.e., returning \$1) during the Trust Game were expected to have histories of high betrayal trauma.

5. High dissociators were expected to be less likely than low dissociators to report feelings of betrayal during the Trust Game and label the partner untrustworthy and unreliable.
6. A positive correlation was expected between self-report and behavioral measures of general trust for the entire sample.

#### *Research Question*

1. What is the relationship between behavioral and self-report measures of general and relational trust for high betrayal trauma survivors?

### **Betrayal Awareness Research Hypotheses and Questions**

#### *Hypotheses*

1. Compared to participants without a history of high betrayal trauma, participants with a history of high betrayal trauma were expected to be less likely to infer child abuse in a drawing intended to depict child sexual abuse.
2. Significant differences in anxiety change scores (Anxiety Change Score calculated as follows: Anxiety score following AIR Drawing exposure – Anxiety score before AIR Drawing exposure) were expected between participants with and without a history of high betrayal trauma.
3. High betrayal trauma and peritraumatic dissociation were expected to be associated with reduced awareness for betrayal.

#### *Research Questions*

1. What is the impact of AIR I interpretation category and high betrayal trauma history on anxiety change from pre to post AIR I picture exposure?
2. What is the relationship between dissociation and AIR I interpretation?



## CHAPTER II

### METHOD

#### **Participants**

Participants were 216 undergraduate females (N=144) and males (N=70) currently attending the University of Oregon (N=2 participants identified as “other”). Approximately 79% of the sample identified as Caucasian while 90% endorsed a heterosexual orientation. Participant age ranged from 17 to “50 or older”(M=20.06, SD=2.99). The majority of participants indicated they were either single (53%) or dating (42%). Participants were recruited online through the University of Oregon Department of Psychology’s Human Subjects Pool. The Human Subject’s Pool is primarily comprised of undergraduates enrolled in introductory psychology courses. All participants received academic credit in partial fulfillment of a research participation requirement. Additionally, participants were offered a \$10 award for their participation. Participants elected to participate in the current study based on schedule availability. Individuals did not self-select into the study based on content knowledge. Prior to participant recruitment, human subjects approval was granted by the University of Oregon’s Office for the Protection of Human Subjects.

#### **Procedure**

Data were collected using Qualtrics, a web-based survey software. The study took participants approximately 50 minutes to complete. After providing informed consent, participants were asked to confirm that they understood they would receive a \$10 research participation reward upon completion of all measures. Subsequently, participants read Trust Game instructions and were invited to play the Trust Game.

Following the Trust Game, participants completed a series of self-report measures to assess their reactions to the Trust Game, history of traumatic and betrayal experiences, and levels of general and relational trust. Next, participants provided captions for three drawings intended to depict child abuse (Ambiguous Interpersonal Relationship (AIR) Drawings I, II, & III). Finally, participants completed a measure indicating the extent to which they experienced dissociative symptoms while interpreting the drawings. Participants were asked to complete pre- and post- measures of state anxiety in response to interpreting the drawings. All participants were presented with a computerized debriefing form upon completion of the self-report instruments.

### **Exploratory Measures**

In addition to the measures described below, other measures and procedures were included during data collection for future analysis. Specifically, participants completed the Trauma Symptom Checklist, the Betrayal Detection Measure-Revised, the Trust Inventory, and the Post Traumatic Stress Disorder Checklist. In addition to interpreting three drawings intended to depict child abuse (see Study Measures for detailed description), participants interpreted the content and meaning of three drawings intended to depict a *safe* interaction between an adult and child (Safe Drawings I, II, & III). The presentation of the drawings was ordered such that each participant viewed a picture intended to depict child abuse followed by a picture intended to depict a safe interaction between an adult and child. All participants viewed the drawings in the following order: AIR I Drawing, Safe I Drawing, AIR II Drawing, Safe II Drawing, AIR III Drawing, Safe III Drawing. Finally, provided with a description of the content and meaning of all six drawings (AIR Drawings I, II, & III and Safe Drawings I, II, & III), participants were

asked to indicate whether they agreed or disagreed with the description. These measures and procedures will not be described in detail below because they were intended for future analyses.

## **Study Measures**

### **Demographics Questionnaire**

The principal investigator for the current study created the Demographics Questionnaire, which included questions about ethnic identification, age, gender, sexual orientation, current relationship status, and length of current or most recent romantic partnership.

### **The Trust Game**

Originally developed by experimental economists Berg, Dickhaut, and McCabe (1995) the Trust Game was designed to evaluate trust and reciprocity within an investment framework. The Trust Game used in the current study was modified from the computerized version by Baumgartner, Heinrichs, Vonlanthen, Fischbacher, and Fehr (2008). Prior to playing the game, participants were informed that they would be given \$10.00 for participating in the study and given instructions for the Trust Game (described to participants as the “Investment Game”). To create a sense of social interaction that facilitates trusting behavior, it was important for participants to believe they were playing with a human partner. Thus, participants were told they would be interacting anonymously with an online partner for the duration of the Trust Game. However, in reality, computer generated responses were used during the Trust Game. The computer system was programmed to return \$1.00 to each participant, regardless of the amount the participant transferred. This betrayal was perpetrated in the context of the study to

explore participants' reactions to betrayal as well as their ability to label betrayal accurately.

Participants interacted with their partner through keyboard clicks. The first screen of the Trust Game invited the participant to transfer any integer of his/her research participation award to the online partner. During the Trust Game, participants transferred money with the knowledge that the transferred amount would be tripled in the online partner's account and the partner would be given the opportunity to transfer a portion of the earnings back to the participant. Once participants transferred a portion of their research participation reward, a brief delay occurred while the computer informed participants their partner was deciding how much money to return to the participant. Subsequently, participants were informed their online partner decided to return \$1.00. Thereafter, participants were notified about the partner's desire to play another round of the Trust Game. After agreeing or disagreeing to play a second round, the participant was informed that his/her partner had logged out.

### **Game Reactions Questionnaires I and II**

The Game Reactions Questionnaires I (Gobin & Freyd, 2009) is a brief four item instrument that was developed to explore participants' emotional reaction immediately following the Trust Game. Provided with a list of 11 adjectives, participants were asked to choose the term that best captured their emotional reaction to their partner's decision to return \$1.00. Participants were also asked to classify their partner as either reliable or unreliable and trustworthy or untrustworthy. Then participants were invited to provide an explanation for their emotional reaction. Game Reactions Questionnaire II (Gobin & Freyd, 2009) is a three-item measure that was designed to assess the extent to which

participants believed they were playing with a human partner. Given three response choices (*yes*, *no*, and *uncertain*) participants were asked to judge the online partner's authenticity, level of affiliation with the research team, and humanness. Sample items include, "While playing the game, I felt I was playing with an authentic person; playing for real." Game Reactions Questionnaire I was presented to participants immediately following the Trust Game. Participants were invited to complete Game Reactions Questionnaire II following the completion of the following exploratory and study measures: Brief Betrayal Trauma Survey, General Trust Scale, Betrayal Detection Measure, Dyadic Trust Scale, Dissociative Experiences Scale, Trust Inventory, and Trauma Symptom Checklist.

### **Brief Betrayal Trauma Survey**

The Brief Betrayal Trauma Survey (BBTS; Goldberg & Freyd, 2006) is a 12-item self-report measure that assesses the experience of life-threatening trauma at three time-points. For each item, participants are asked if they experienced the event before age 12, between ages 12-17, and at age 18 and older. Items include exposure to non-interpersonal trauma, direct exposure to interpersonal violence, and witnessing interpersonal violence. Items are categorized into three levels of betrayal: high or HBT (e.g., traumas perpetrated by someone with whom the respondent was very close), medium or MBT (e.g., traumas perpetrated by someone with whom the respondent was not very close), and low or LBT (e.g., natural disasters) (Goldberg & Freyd, 2006). The Brief Betrayal Trauma Survey has shown good convergent validity (Goldberg & Freyd, 2006). The reported three-year test-retest reliability of the BBTS is 83% for events that occurred during childhood and 75% for events that occurred in adulthood (Goldberg & Freyd, 2006). In the current sample,

54% of participants reported experiencing some type of trauma. These rates of trauma are similar to those reported by other researchers using the BBTS with college samples (e.g., Kaehler & Freyd, 2009).

### **Dissociative Experiences Scale**

Developed by Carlson and Putnam (1993), the Dissociative Experiences Scale (DES) measures respondent's reported experiences of the frequency of occurrence of 28 dissociative phenomena in everyday life. Response options range from 0% (Never) to 100% (Always). The overall DES score is computed by averaging each participant's responses across the number of items completed. Scores below 10 indicate a normal range of dissociative experiences while scores above 30 signify the presence of frequent enough dissociative experiences that they may interfere with adaptive functioning (Carlson & Putnam, 1993). The mean DES score for the entire sample in the present investigation was 12.76 (SD=11.47). In line with previous research (e.g., Hulette, Kaehler, & Freyd, 2011), a higher mean was observed in the HBT group (M=16.69, SD=14.07) compared to participants who did not report the experience of high betrayal trauma (M=10.62, SD=9.15). The rates of DES in the current sample are similar to those found in other college samples (e.g., Klest & Freyd, 2007; Douglas, 2009). The DES has good reported reliability and discriminate and construct validity (Briere, 1997; Carlson & Putnam, 1993; Carlson, Putnam, Ross, Torem, & et al., 1993; van Ijzendoorn & Schuengel, 1996).

### **Peritraumatic Dissociative Experiences Questionnaire**

The Peritraumatic Dissociative Experiences Questionnaire (PDEQ; Marmar, Metzler, & Otte, 2004) is a 10-item self-report measure of dissociative experiences that

occur alongside exposure to traumatic stressors. Using a 5-point Likert scale ranging from “Not at all true” to “Extremely true”, participants were asked to indicate the extent to which they experienced each dissociative symptom while viewing the pictures. A modified 8-item version of the scale was found to be psychometrically robust with good reliability and validity (Marshall Orlando, Jaycox, Foy, & Belberg, 2002).

### **Pre/Post Drawings Anxiety Questionnaire**

The 9-item anxiety subscale of the Trauma Symptom Checklist was used to measure participants’ level of anxiety before and after captions were provided for the all six drawings. One item (i.e., unnecessary and over frequent washing) was excluded from the pre/post anxiety subscale due to lack of fit with state anxiety. A 40-item measure, the Trauma Symptom Checklist (TSC-40; Briere & Runtz, 1989) examined the prevalence of general trauma-related distress in the sample. The TSC-40 assesses symptoms commonly associated with traumatic events across six subscales: depression, dissociation, anxiety, sexual problems, sleep disturbance, and sexual trauma index. Participants were asked to indicate how frequently they experienced each of the forty items on a scale of “0” to “3.” Sample items include “anxiety attacks” and “trouble getting along with others.” The TSC-40 is scored by summing responses with a possible score range of 0-120. Anxiety subscale scores were calculated by summing the relevant items. The TSC-40 has been shown to have good reliability and validity (e.g., Elliot & Briere, 1992).

### **General Trust Scale**

The General Trust Scale (Siegrist, Keller, Earle, & Gutscher, unpublished manuscript) is a 10-item self-report instrument that measures general trust defined as “the conviction that most people can be trusted most of the time.” Presented with a number of

items expressing beliefs about the trustworthiness of most people, participants indicated their level of agreement using response categories that ranged from “agree entirely” to “disagree entirely”. The internal consistency of the General Trust Scale is strong ( $\alpha = .87$ ). The General Trust Scale has strong convergent validity and has shown strong correlations (e.g.,  $r = .76$ ) with other measures of general trust (Siegrist, Keller, Barle, & Gutscher, unpublished manuscript).

### **Dyadic Trust Scale**

The Dyadic Trust Scale (DTS; Larzelere & Huston, 1980) is an 8-item inventory that measures interpersonal trust in a romantic partner. Participants were provided with a series of trust statements and asked to indicate the degree to which they agreed with each statement on a 7-point Likert scale ranging from strongly disagree to strongly agree. For the purposes of this study, a 5-point Likert scale was used. The Dyadic Trust Scale is highly reliable with an internal consistency alpha of .93 and item-total correlations ranging from .72 to .89 (Larzelere & Huston, 1980).

### **Ambiguous Interpersonal Relationship (AIR) I, II, and III Drawings**

Three line drawings intended to depict sexual abuse of a child were selected for presentation to the participants. Ambiguous Interpersonal Relationship Drawing I (Lindblom & Carlsson, 2001; referred to as Threat in the original study by Lindblom and Carlsson) is a black and white drawing created by an amateur artist intended to depict child sexual abuse (see appendix). Both characters in the picture were drawn to appear gender and affect neutral. In the picture, a young person (age 6-10 years) is sitting on the lap of an older person, who is sitting in an armchair. Both individuals are dressed in a T-shirt and trousers. The young person’s body is fully visible, while only the head and legs



of the adult are partially visible. The child's pants zipper is open. The adult's head is leaning against the child's head and the adult's left arm is extended in front of the child, and his/her hand is halfway inside the zipper on the child's pants. The child's hands are touching the adult's left arm. There is no dialogue between the two characters in the drawing.

Ambiguous Interpersonal Relationship (AIR) II is a cartoon drawing that was modified from a children's storybook (Bahr, 1986a). The color neutral drawing portrays an adult male with dark hair and a mustache lying on the floor, leaning on his right forearm. He is wearing a white shirt and black pants. The man is facing a young girl (age 6-10 years) who is also sitting on the floor with her legs bent towards her torso. The male's right hand is resting on the girl's shoulder. The man's left hand is not visible. The girl is wearing a plaid shirt, glasses, and dark pants. The left side of the girl's face is visible in the picture, and her facial expression is neutral. The two characters are in a room that is decorated with pictures of hot air balloons, a pig, and a truck. A speech bubble reading, "This is our little secret." is above the male's head.

Ambiguous Interpersonal Relationship (AIR) III is a cartoon drawing that was modified from a children's storybook (Bahr, 1986b). The black and white drawing portrays a young girl (age 7-12 years) interacting with an adult male who is wearing a white shirt, glasses, and dark pants. The male is lying on his back on a sofa. His right hand is holding an open book that is resting on his abdomen. The young girl is wearing a dress and is sitting on a footrest. She is facing the man. Her right arm is extended and her palm is facing the male's face. The male's left arm is extended behind the girl and his hand is approximately two inches away from the girl's buttocks. A speech bubble is

above the girl's head and reads, "Don't do that anymore." Participants were asked to provide a brief (15 words or less) caption for the drawings describing the nature of the contact between the two characters. Results for AIR drawings II and III will only be mentioned briefly in the results section because the two drawings were exploratory and intended for future analysis.

## CHAPTER III

### RESULTS

#### **Analysis of Trauma and Revictimization Hypotheses**

##### **1.0. Rates of Victimization**

Participants' responses on the Brief Betrayal Trauma Survey were coded for the experiences of LBT, MBT, and HBT. Table 1 describes the items that comprised the LBT, MBT, and HBT groups. Each participant was given a score on each of the categories by summing the number of items endorsed within each category, regardless of the developmental level (e.g., childhood (ages 0-11), adolescence (ages 12-17), adulthood (age 18 or older)) at which the trauma occurred. Figure 1 illustrates the overall rates of trauma. It is important to remind the reader that the mean age of participants in the sample was 20.06 (SD=2.99). A majority of the sample (54%) reported the experience of one or more betrayal trauma while 46% of the sample did not endorse a betrayal trauma. A total of 76 participants endorsed HBT. While 6 individuals only experienced HBT in adulthood, 70 experienced HBT early in life (i.e., during childhood and/or adolescent years). Of those participants, 29 (41%) were revictimized. An individual was considered revictimized if HBT was endorsed at two or more developmental levels (i.e., during childhood and adolescence, childhood and adulthood, adolescence and adulthood, or childhood, adolescence, and adulthood). Figure 2 displays the rates of HBT and revictimization by age. Of the 36 participants who reported childhood HBT, 22 were revictimized during adolescence and 11 were revictimized during adulthood. Eighteen of the 56 individuals who experienced adolescent HBT (some of which also experienced childhood HBT) were revictimized during adulthood. A total of 24 participants

experienced adult HBT, of those individuals, 18 also experienced HBT during adolescence or childhood. Eleven individuals experienced HBT at all three levels of development. Eleven individuals experienced childhood and adolescent HBT, but no adult HBT. Seven individuals experienced adolescent and adult HBT, but no childhood HBT. No participant endorsed the combination of only childhood and adult HBT.

**1.1. Trauma and revictimization hypothesis 1: High betrayal trauma experienced during childhood will be associated with increased risk for adolescent and adult high betrayal trauma victimization.**

Relative risk ratios for experiencing childhood, adolescent, and adulthood high betrayal trauma were calculated. Analyses revealed childhood HBT survivors in the present sample were revictimized 61% of the time while those without a history of childhood HBT were victimized in adolescence 18% of the time;  $\chi^2(1)=27.85, p=.000, \Phi=.359$ . Thus participants who experienced high betrayal trauma during childhood were 3.88 times more likely to be revictimized in adolescence. 7.2% of participants who did not experience childhood HBT experienced a trauma high in betrayal during adulthood while 30% of participants who experienced childhood HBT were revictimized in adulthood;  $\chi^2(1)=16.54, p=.000, \Phi=.277$ .

**1.2. Trauma and revictimization hypothesis 2: Adolescent high betrayal trauma (both adolescent onset HBT and adolescent HBT that was preceded by childhood HBT) will be associated with increased risk for high betrayal trauma victimization during adulthood.**

Male and female undergraduates in the current study who reported the experience of childhood HBT had a 4.24 relative risk of adult revictimization. Adolescent HBT was

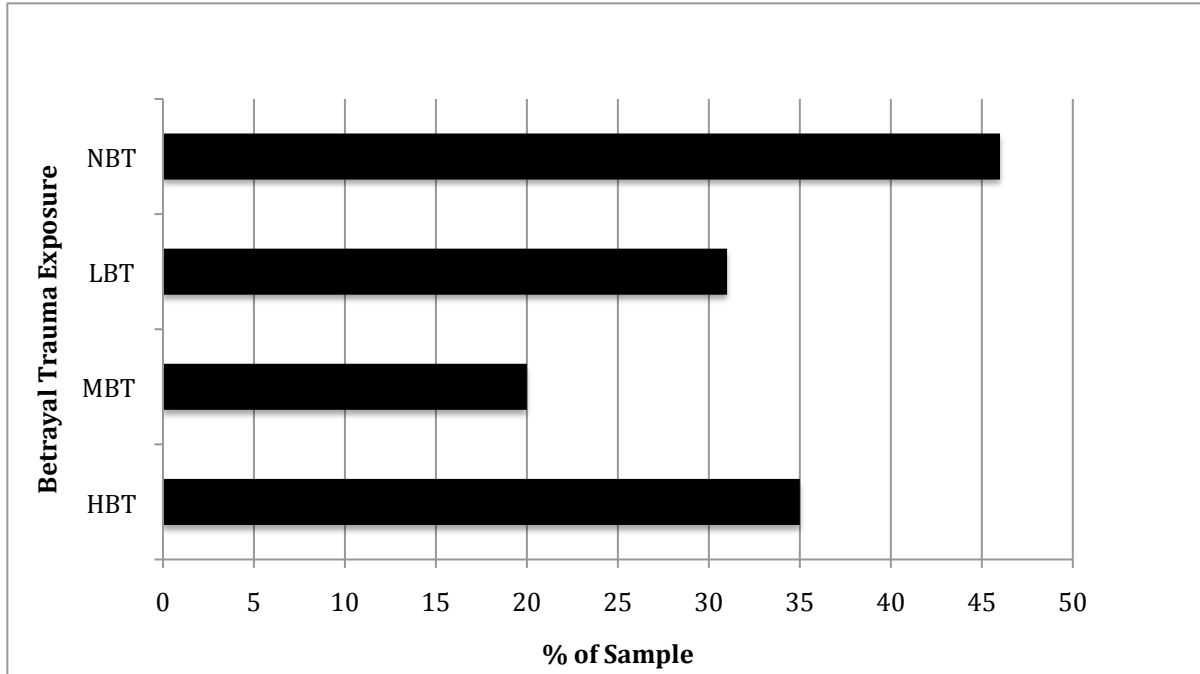
associated with an increased risk for adult HBT,  $\chi^2 (1)=33.858, p=.000, \Phi=.396$ .

Analyses revealed adolescent HBT survivors in the study were 8.56 times more likely to be victimized in adulthood. The relationship between adolescent onset HBT and adult HBT was explored. Participants who first experienced HBT during adolescence were five times more likely to experience HBT during adulthood. While 4.1% of participants who experienced neither childhood or adolescent HBT experienced high betrayal during adulthood, 20.5% of those who first experienced HBT during adolescence were revictimized in adulthood; Fisher's exact test=.004,  $\Phi=.249$ .

**Table 1.** Betrayal Trauma Categorization

<b>High Betrayal Trauma Items</b>
You were made to have some form of sexual contact, such as touching or penetration, by someone with whom you were very close (such as a parent or lover).
You were deliberately attacked so severely as to result in marks, bruises, burns, blood, or broken bones by someone with whom you were very close.
You were emotionally or psychologically mistreated over a significant period of time by someone with whom you were very close.
<b>Medium Betrayal Trauma Items</b>
You were deliberately attacked that severely [so severely as to result in marks, bruises, burns, blood, or broken bones] by someone with whom you were not close.
You were made to have such sexual contact by someone with whom you were not close.
<b>Low Betrayal Trauma Items</b>
Been in a major earthquake, fire, flood, hurricane, or tornado that resulted in significant loss of personal property, serious injury to yourself or a significant other, the death of a significant other, or the fear of your own death.
Been in a major automobile, boat, motorcycle, plane, train, or industrial accident that resulted in similar consequences.

*Note:* Participants were considered revictimized if they initially experienced HBT during childhood or adolescence and subsequent HBT during adolescence or/and adulthood.



*Figure 1.* Overall rates of trauma. Total percentage is greater than 100 because participants reported multiple victimization experiences, and thus could contribute data to more than one exposure category.

### **Analysis of Trust Research Hypotheses and Questions**

**2.0. Trust hypothesis 1: Survivors of high betrayal trauma will exhibit extreme interpersonal trust tendencies (i.e., transfer very low or very high amounts) during the Trust Game.**

A one-way ANOVA testing mean differences in transfer amount among participants who experienced NBT, LBT, MBT, and HBT was planned. This categorization was conducted such that only individuals who experienced LBT were included in the LBT group. Individuals who reported MBT, but no HBT were included in the MBT group, even if they reported experiences of LBT. Similarly, individuals who reported HBT were included in the HBT group, regardless of their experience of MBT and LBT.

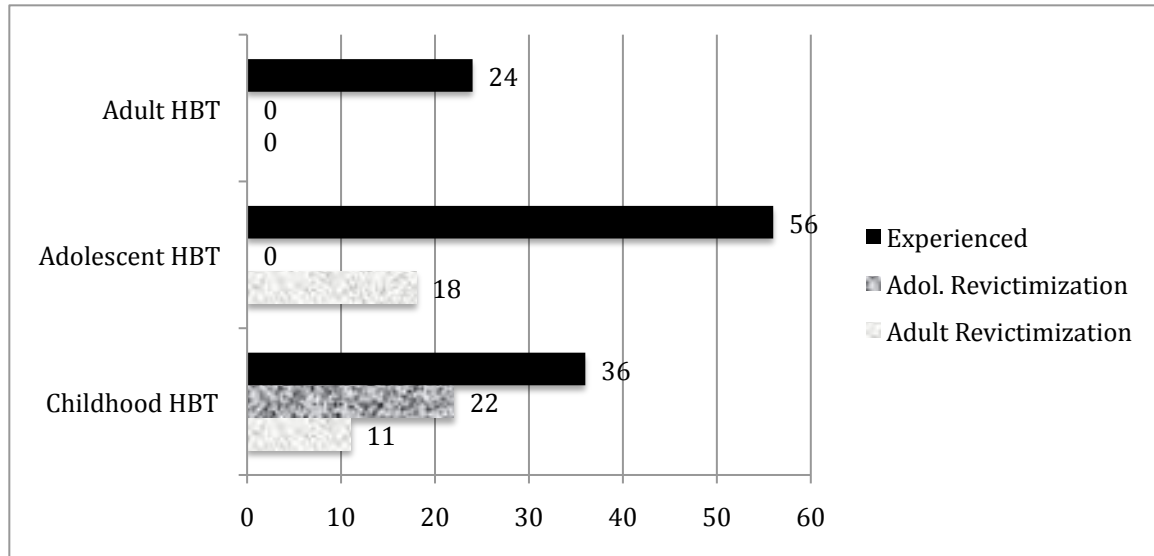


Figure 2. Rates of high betrayal trauma and revictimization by age. Black bars include N=70 participants who reported any HBT during the corresponding developmental level indicated on the y-axis. Marble bars include the fraction of participants from preceding black bar who were revictimized during adolescence and adulthood.

A significant omnibus effect was not observed,  $F(3, 212) = 0.23, p = 0.88, \eta^2 = 0.00$ . Both the LBT and MBT groups transferred the largest amount of money during the Trust Game ( $M = 5.88, SD = 3.33$  and  $SD = 2.36$ , respectively). On average, individuals who experienced no betrayal trauma transferred \$5.78 ( $SD = 2.84$ ). Individuals who endorsed HBT transferred the least amount of money ( $M = 5.47, SD = 2.88$ ); see Figure 3.

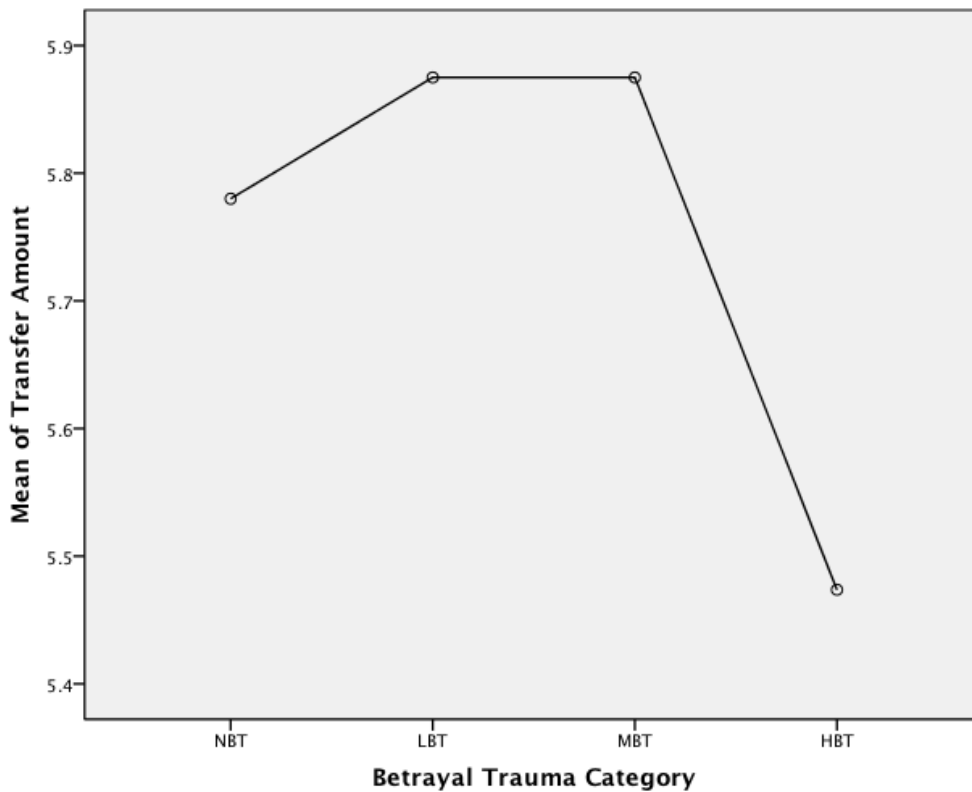
Because the hypothesis specified extreme differences in willingness to trust, a second analysis was conducted whereby a quartile split was performed and individuals were grouped into three categories: participants with transfer amounts in the 25<sup>th</sup> percentile, participants with transfer amounts in the 50<sup>th</sup> percentile, and participants with transfer amounts in the 75<sup>th</sup> percentile. A 2x3 chi square test of independence was then performed to examine the relationship between high betrayal trauma history (HBT or NHBT) and transfer amount (categorized into quartiles). The test revealed the two

variables are independent of one another,  $\chi^2(2)=0.98, p=0.61, \Phi=0.07$ . That is, HBT survivors are no more likely than NHBT survivors to appear in the highest and lowest quartiles of the transfer amount variable.

**2.1. Trust hypothesis 2: High betrayal trauma survivors will self-report lower interpersonal trust tendencies (general and relational) than participants without a history of high betrayal trauma.**

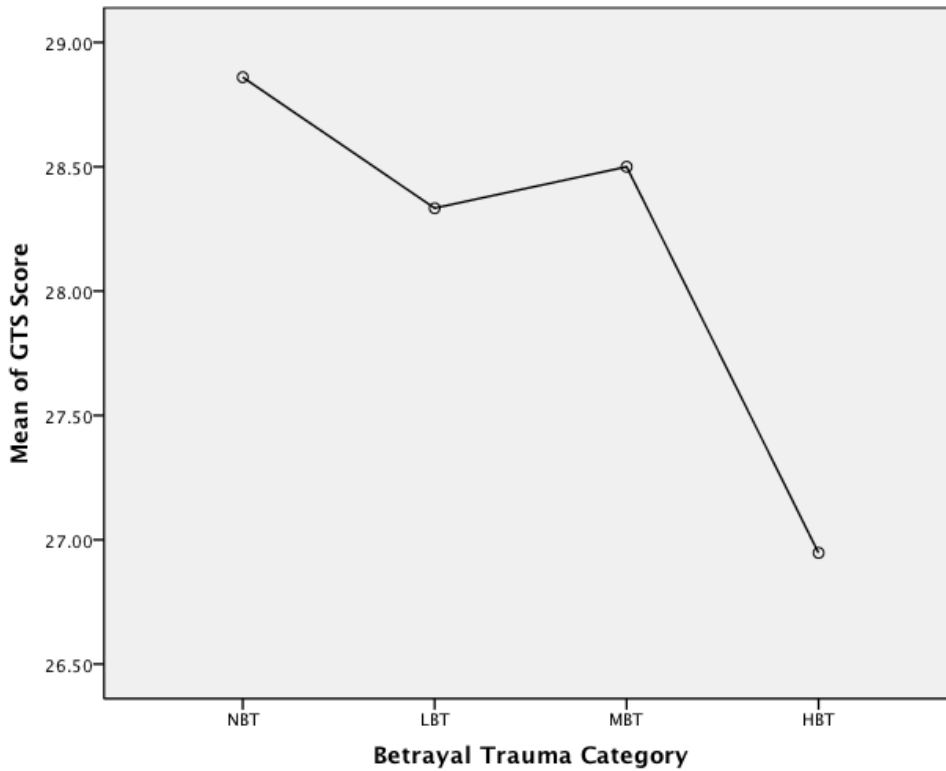
A self-report measure of trust was also evaluated for differences in mean general trust tendencies among the NBT, LBT, MBT, and HBT groups. A one-way ANOVA was used to explore group differences. Polynomial linear contrasts were planned to explore mean differences among the groups. The one-way ANOVA revealed a marginally significant omnibus effect,  $F(3, 212)=2.27, p=0.08, \eta^2=0.03$ . Although the omnibus effect did not reach statistical significance, I focus here on the contrast of interest as is appropriate according to Rosnow & Rosenthal (2000). The linear contrast was significant,  $F(1, 212)=4.15, p=0.04, \eta^2=0.02$ . The pattern of means in Figure 4 shows the highest rates of general trust in the NBT ( $M=28.86, SD=4.51$ ), a decreased level in the LBT group ( $M=28.33, SD=4.45$ ), a further decline in the MBT group ( $M=28.50, SD=4.07$ ), and the lowest level of self-reported trust in the HBT group ( $M=26.94, SD=5.59$ ). Posthoc contrasts using Tukey's HSD tests show that the difference between the NBT and HBT groups was marginally significant,  $p = 0.05$ . LBT and MBT groups were not significantly different from one another,  $p = 1.00$ . MBT and HBT groups did not significantly differ from one another,  $p=0.66$ . LBT and NBT groups were also not significantly different,  $p = 0.97$ ; see Figure 4.





*Figure 3.* Mean transfer amount by betrayal trauma history. Categories were developed as follows: NBT=no report of a traumatic experience at any developmental level; LBT=report of trauma low in betrayal but no medium or high betrayal trauma; MBT=report of trauma medium in betrayal, but no high betrayal trauma (could have LBT); HBT=report of trauma high in betrayal (could have MBT and LBT).

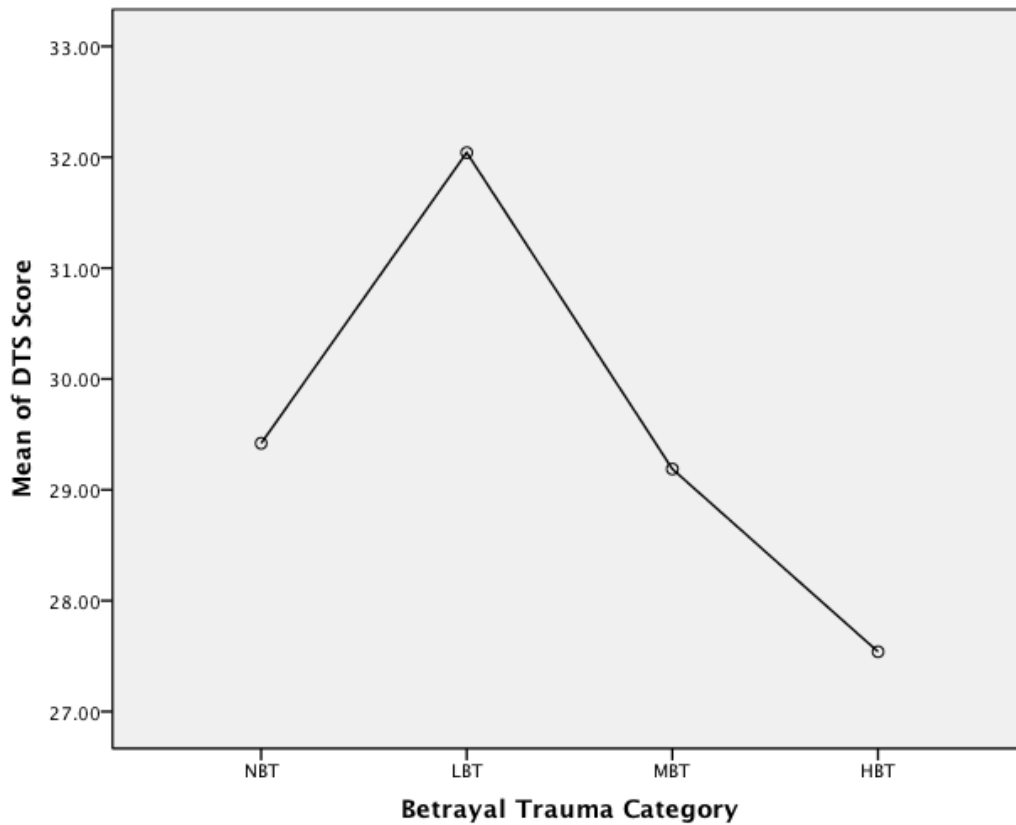
A self-reported measure of relational trust was also explored to evaluate differences in mean trust in romantic partners among the NBT, LBT, MBT, and HBT groups. A one-way ANOVA was used to explore group differences. A one-way ANOVA with a Brown-Forsythe correction for homogeneity of variances revealed a statistically significant omnibus effect,  $F(3, 99.199)=3.87, p=0.01, \eta^2=0.05$ . Examination of the pattern of means revealed the HBT group had the lowest levels of relational trust ( $M=27.53, SD=7.23$ ) followed by the MBT group ( $M=29.19, SD=6.08$ ). The NBT group ( $M=29.42, SD=6.02$ ) had the second highest levels of relational trust



*Figure 4.* Mean General Trust Scale (GTS) score by betrayal trauma history. Trauma categorization same as described in Figure 3 caption.

while the LBT group had the highest rates of relational trust ( $M=32.04$ ,  $SD=4.27$ ); see Figure 5. Post hoc comparisons using Game-Howell tests for unequal variances revealed a significant difference between the LBT and HBT groups,  $p=.002$ . The difference between the NBT and LBT groups approaches statistical significance,  $p=.077$ .

**2.2. Trust hypothesis 3. High betrayal trauma survivors will exhibit rigid trust tendencies (i.e., agree to play a second round of the Trust Game after being notified their partner only returned \$1).**



*Figure 5.* Mean Dyadic Trust Scale (DTS) score by betrayal trauma history. Trauma categorization same as described in Figure 3 caption.

A logistic regression analysis was used to predict desire to play again using transfer amount and high betrayal trauma history as predictor variables. Due to the prediction that the effect of willingness to trust (as measured by initial amount transferred during the trust game) on desire to play again would be dependent on high betrayal trauma history, the interaction between transfer amount and high betrayal trauma history was also included in the model as an independent variable. On the dependent variable

(play again), not playing again was coded as 0 and playing again was coded 1. To decrease multicollinearity (i.e., the probability that the interaction term is highly correlated with the independent variables) and increase the interpretability of a possible interaction between high betrayal trauma history and transfer amount, transfer amount was first centered. The approach of centering continuous variables to increase the interpretability of interactions has been suggested by a number of researchers (e.g., Judd and McClelland, 1989).

A hierarchical logistic regression revealed the model including only the main effects of high betrayal trauma categorization and transfer amount against a constant only model was insignificant,  $\chi^2(2)=1.22, p=0.54$ . A test of the full model (including the interaction term) against the model with two predictors was statistically significant ( $\chi^2(1)=4.93, p=0.03$ ) indicating that the interaction term significantly contributed to the model, distinguishing between those who were willing to playing a second round of the trust game and those who declined to play a second round. The Wald criterion further demonstrated that the interaction between HBT membership and transfer amount was the only independent variable in the model that made a significant contribution to prediction ( $p=0.04$ ). Despite statistical significance, Nagelkerke's  $R^2$  of 0.05 indicated a weak relationship between prediction and grouping. Given that the majority of the sample (86%) wanted to play again, there was not much variation to explain in the model, and the overall fit of the model was weak ( $p=0.105$ ). Prediction success overall was 86% at the default cutoff criterion of 0.50 (0% for declining to play again and 100% for agreeing to play again).

To help interpret the pattern of effects given the significant interaction, simple effects test were conducted. Differences in transfer amount were tested at low and high levels of HBT (HBT/NHBT). The first test of simple effects examined the impact of transfer amount on willingness to play again within the NHBT group. The second test investigated the impact of transfer amount on willingness to play again within the HBT group. The results of the tests of simple effects reveal that transfer amount did not predict willingness to play again for participants without a history of HBT. However, for participants with a history of HBT, transferring more money was associated with a greater likelihood of wanting to play a second round of the Trust Game; see Table 2. The pattern of results is illustrated in Figure 6. For the purposes of the graph, odds ratios of willingness to play again were calculated for participants who transferred high (1 SD above the mean) and low (1 SD below the mean) amounts during the Trust Game. The odds are 8.97 that someone who experienced HBT and transferred a high amount during the Trust Game would agree to play again, all other factors staying constant. By comparison, the odds that a participant who experienced HBT, but transferred a low amount (i.e., 1 SD below the mean for transfer amount) during the Trust Game would want to play again are 7.45.

**2.3. Trust hypothesis 4. Participants who do not report feelings of betrayal in response to the partners' action (returning \$1) during the Trust Game will have histories of high betrayal trauma.**

To evaluate this hypothesis, participants' responses to questions on the Game Reactions Questionnaire I were explored. Table 3 displays the frequencies of each of the 14 emotional responses. A 2x14 chi square test of independence was planned to explore

the relationship between HBT history and assessment of partners' behavior during the Trust Game. However, cross tabulation of the data showed that several cells had counts of less than five, thus a 2x14 chi-square would be unreliable. To avoid Type I error (stemming from expected frequencies in one or more cells less than five), participants' emotional reactions were collapsed into two categories: positive emotional reaction and negative emotional reaction. Table 3 describes the categorization of the 14 emotional responses. A total of 14 participants endorsed "other". Given uncertainty about which category their responses might fall, these participants were excluded from the test of this hypothesis. Thus, the sample size for this analysis was 202. A 2x2 chi square test of independence using Yates' correction for continuity was used to test the hypothesis.

**Table 2.** Effect of Transfer Amount and High Betrayal Trauma History on Willingness to Play Again

Test 1	B	Wald	Exp (B)
HBT status	0.24	0.24	1.27
Transfer Amount	-0.35	0.16	0.97
Transfer*HBT	0.36	4.31*	1.43
Test 2	B	Wald	Exp (B)
HBT status	-0.24	0.24	0.79
Transfer Amount	0.32	4.69*	1.38
Transfer*HBT	-0.36	4.31*	0.70

*Note.* \*p<.05 Simple effects test with HBT status coded 0 (did not experience high betrayal trauma) and 1 (experienced high betrayal trauma) in Test 1. Test 2 includes the results for simple effects test when HBT status coded as 0 (experienced high betrayal trauma) and 1 (did not experience high betrayal trauma). B= unstandardized logit

coefficients; Wald= Wald chi-square test; Exp (B)= odds ratios (i.e., the odds of agreeing to play a second round of the trust game); HBT status=high betrayal trauma status (experienced vs. not experienced).

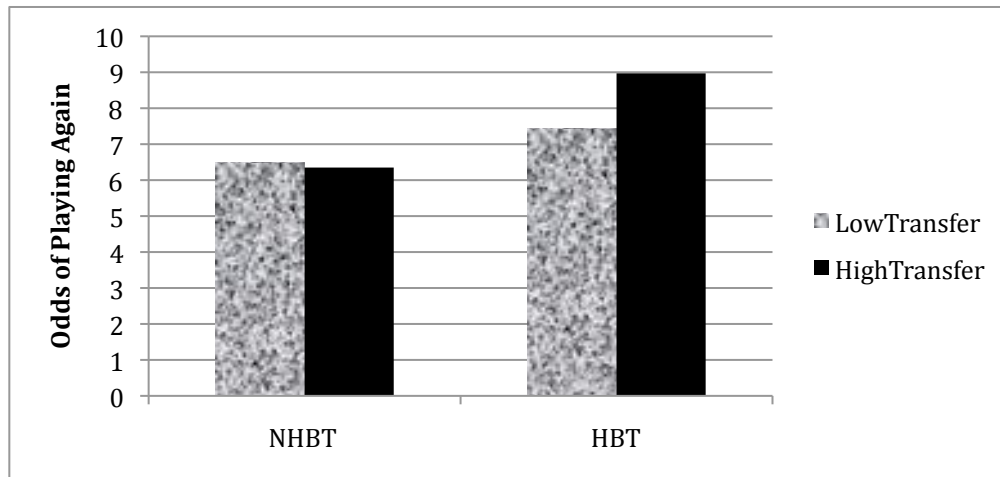


Figure 6. Odds of playing again by high betrayal trauma history and transfer amount interaction.

An equally high percentage of both participants who did (73%) and did not report the experience of HBT (77%) reported negative affective reactions to their partners' behavior during the Trust Game. Trauma history (HBT [N=71] vs. NHBT [N=131]) and assessment of partner's behavior during the Trust Game were found to be independent of one another,  $\chi^2(1) = 0.19, p = 0.66, Phi = 0.04$ . Thus, HBT survivors were not more likely to report positive or negative emotional reactions in response to their partner returning only \$1.00 during the Trust Game.

Descriptive statistics were calculated to explore characteristics of the individuals who reported feeling betrayed by their partners' actions during the Trust Game. Of the 22 individuals who reported feeling betrayed, 63% (N=14) were females, 32% (N=7) experienced trauma high in betrayal, and 14% (N=3) were revictimized. Twenty-one of those 22 participants who labeled their partner's behavior as a betrayal also described

their partner as unreliable and untrustworthy. Eighty six percent (N=19) of these respondents agreed to play a second round of the Trust Game.

**Table 3.** Emotional Reactions to Partner’s Actions During Trust Game

<b>Emotion</b>	<b>Any Trauma (N)</b>	<b>HBT (N)</b>	<b>No Trauma (N)</b>
Happy^	4	2	3
Disappointed*	49	29	41
Satisfied^	3	2	4
Betrayed*	12	7	10
Ashamed	0	0	0
Frustrated*	2	2	7
Content^	3	3	1
Indifferent^	17	12	14
Gracious	0	0	0
Hurt*	2	1	1
Angry*	5	4	2
Let Down*	12	9	10
Excited^	0	0	0
Other	7	5	7

*Note.* \* indicates the emotional responses included in the negative emotional reaction category. ^ indicates the emotional responses included in the positive emotional reaction category. “Other”, “gracious”, and “ashamed” were excluded from the categorical analysis.



**2.4. Trust hypothesis 5. High dissociators will be less likely than low dissociators to report feelings of betrayal during the Trust Game and label the partner untrustworthy and unreliable.**

A 2x2 chi square test of independence was used to examine differences in emotional response to partner's failure to return more than \$1 between high and low dissociators. For this analysis, categories for dissociation (high vs. low) and feelings of betrayal (yes vs. no) were created. High dissociators had DES scores greater than or equal to 30 (N=19) while participants included in the low dissociation group (N=197) had DES scores less than 30. The cut-off of 30 was chosen due to reports in the literature that suggest DES scores above 30 are indicative of pathological dissociation levels (Carlson & Putnam, 1993).

Individuals who reported feeling betrayed by their partner's actions during the Trust Game were included in the "yes" category of the feelings of betrayal variable while all other responses were coded as "no". A nonsignificant relationship was observed between dissociation and feelings of betrayal ( $p=0.30$ , one-tailed Fisher's exact test). However, a marginally significant relationship was found between the two variables when a cut off of 20 was used to distinguish high (N=39) and low (N=177) dissociators. Specifically, a higher percentage of the high dissociation group (18% vs. 8% of the low dissociation group) reported feeling betrayed by their partner's actions during the Trust Game ( $p=.075$ , one way Fisher's exact test,  $\Phi=0.12$ ). Given research evidence suggesting DES scores above 20 indicate the presence of highly dissociative experiences that warrant further clinical assessment, the use of a cutoff score of 20 is adequate (Carlson & Rosser-Hogan, 1993).

Chi square tests of independence were also used to investigate the relationship between dissociation scores and assessment of partner as reliable and trustworthy. While the majority of high (DES scores >20) and low dissociators (DES scores <20) described their partner as unreliable (92% and 82%, respectively), high dissociators were less likely than low dissociators (8% vs. 18%) to label their partner reliable. This finding was marginal, ( $p=.082$ , one-way Fisher's exact test,  $\Phi=0.11$ ). High dissociators were not less likely to describe their partner as trustworthy ( $p=0.39$ , one-tailed Fisher's exact test,  $\Phi=0.04$ ). The majority of participants in both the high (87%) and low (84%) dissociation groups described their partner as untrustworthy.

**2.5. Trust hypothesis 6: A positive correlation was expected between behavioral and self-report measures of general trust for entire sample.**

The amount of money participants initially transferred during the Trust Game was conceptualized as a behavioral indicator of general trust whereas the General Trust Scale was used as a self-report method to examine a similar construct (i.e., participants' general beliefs about other people's benevolence and honesty). The Dyadic Trust Scale was included as a measure of trust (i.e., beliefs about benevolence and honesty) in a significant other. Descriptive statistics for the entire sample were used to explore the relationship among the methods. A significant positive correlation was observed between transfer amount and scores on the General Trust Scale,  $r(216)=0.14, p=0.04$ . Scores on the General Trust Scale had a low positive correlation with scores on the Dyadic Trust Scale,  $r(216)=0.08, p=0.25$ . Scores on the Dyadic Trust Scale and Trust Game transfer amount were not significantly correlated,  $r(216)=0.06, p=0.41$ . The nonsignificant relationship observed between self-reported general trust and relational trust is consistent

with Larzelere and Huston's (1980) finding that trust in a specific other is quantitatively distinct from general beliefs about the trustworthiness of others.

## **2.6. Trust research question 1: What is the correlation between behavioral and self-report measures of general and relational trust for high betrayal trauma survivors?**

Correlations between self-reported general and relational trust and Trust Game behavior were calculated on the subset (N=70) of the sample who reported the experience of one or more HBT early in life (i.e., during childhood and/or adolescent years). Of this subset 41% (N=29) reported subsequent revictimization. Transfer amount was significantly and negatively correlated with scores on the Dyadic Trust Scale,  $r(70) = -0.26, p=0.03$ , indicating individuals with early life trauma high in betrayal who *do not* believe strongly in the benevolence of their partner tended to transfer more money. For this sample, significant correlations were not observed between self-reported relational and general trust ( $p=0.84$ ) and self-reported general trust and transfer amount ( $p=0.10$ ).

### **Manipulation Check for the Trust Game**

After the conclusion of the Trust Game and completion of self-report measures exploring trauma history, general trust, dissociation, and betrayal awareness, participants were asked to reflect on their interactions with their partner and answer questions regarding their partner's authenticity, affiliation with the research team, and humanness (i.e., the extent to which they believed they were playing with a human partner).

## **3.0. Beliefs about Partner Authenticity and High Betrayal Trauma**

The first question on the Game Reactions Questionnaire II, asked participants if they felt they were playing with an authentic partner. Examination of descriptive

statistics revealed a greater part of the sample (69%, N=151) believed their partner was not authentic while 16% (N=35) believed they were playing with an authentic partner and 14% (N=30) reported uncertainty about their partners' authenticity. A 2x3 chi square test of independence revealed a link between HBT history and beliefs about partner authenticity,  $\chi^2(2)=6.97, p=0.03, Cramer's V=0.18$ . The linear by linear association between the two variables was significant,  $p=0.01$ . Compared to ~8% of participants who reported HBT, ~21% of participants without a HBT history reported the belief that their partner was authentic; see Table 4. This finding suggests participants who reported histories of HBT were less likely to believe they were playing with an authentic partner.

### **3.0.1. Beliefs about Partner Authenticity and Willingness to Trust**

The relationship between willingness to trust (in the form of initial transfer amount) and beliefs about partner authenticity was examined using a one-way ANOVA. No mean differences in transfer amount were observed among those who did (N=35; M=6.00, SD=2.87), did not (N=151; M=5.67, SD=2.87) believe, and were uncertain (N=30; M=5.43, SD=2.86) about their partner's authenticity,  $F(2, 215)=0.33, p=0.72, \eta^2=.001$ . However, a significant difference was observed among the three groups with regard to self-reported general trust such that those who reported the belief that they were playing with an authentic partner tended to have higher scores on the General Trust Scale (M=30.03, SD=4.32) than those who did not believe their partner was authentic (M=27.64, SD=5.13) and those who were uncertain about partner authenticity (M=28.17, SD=4.14),  $F(2,215)=3.40, p=0.04, \eta^2=0.03$ . Figure 7 illustrates the relationship between self-reported general trust and beliefs about partner authenticity. A Fisher's exact test did not reveal a significant relationship between beliefs about partner authenticity and desire

to play a second round of the Trust Game,  $p=0.43$  (uncertainty category  $N=30$  participants excluded due to cell sizes below minimum expected count).

### 3.1. Beliefs about Partner Affiliation with the Research Team and High Betrayal Trauma

A greater portion ( $N=130$ ; 60%) of participants reported the belief that they were not playing the Trust Game with a member of the research team, while 22% ( $N=47$ ) of the sample believed they were playing the Trust Game with a member of the research team and 18% ( $N=39$ ) were uncertain about their partner’s affiliation with the research team.

**Table 4.** Beliefs about Partner Authenticity by High Betrayal Trauma History

			Partner Authentic			Total
			Yes	No	Uncertain	
HBT history	NHBT	Count	29	95	16	140
		% within HBT history	20.7%	67.9%	11.4%	100.0%
	HBT	Count	6	56	14	76
		% within HBT history	7.9%	73.7%	18.4%	100.0%
Total	Count	35	151	30	216	
	% within HBT history	16.2%	69.9%	13.9%	100.0%	

A 2x3 chi square test of independence was used to examine the relationship between HBT history and beliefs about partner affiliation with the research team. Results of the analysis revealed the two variables are independent,  $\chi^2(2)=0.23$ ,  $p=0.89$ , Cramer’s  $v=0.33$ . The majority of both those with histories of lifetime HBT ( $N=76$ ; 59%) and

those without any HBT (N=140, 61%) believed their partner was not a member of the research team while the lowest percentages for both groups (20% and 17%, respectively) were observed in the “uncertain” category.

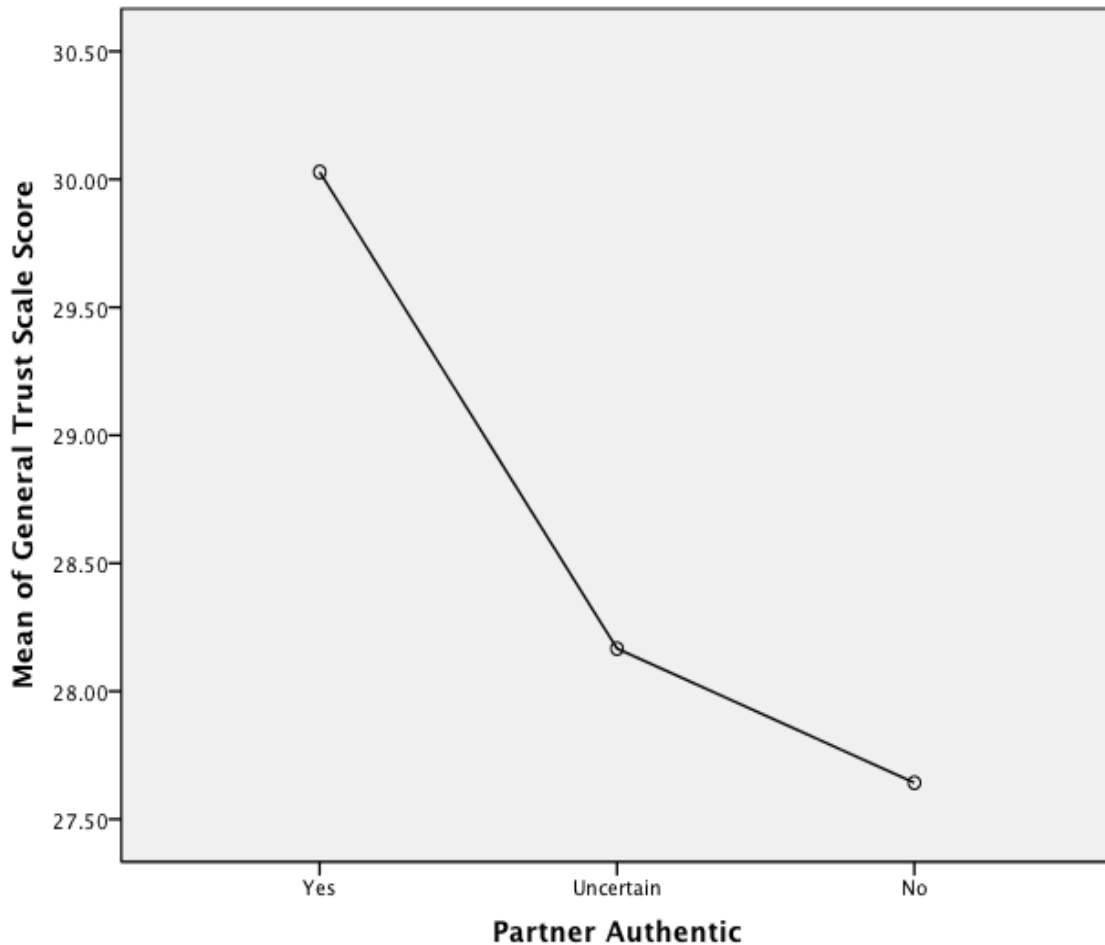


Figure 7. Mean General Trust Scale (GTS) score by beliefs about partner authenticity.

### 3.1.1. Beliefs about Partner Affiliation with the Research Team and Willingness to Trust

The relationship between willingness to trust (in the form of initial transfer amount) and beliefs about partner’s affiliation with the research team was examined using a one-way ANOVA. The analysis exploring the link between beliefs about partner affiliation with the research team and transfer amount revealed a marginally significant

omnibus effect  $F(2, 114.64) = 2.63, p = 0.76, \eta^2 = 0.02$  (due to a violation of the assumption of homogeneity of variance the Browne-Forsythe statistics is reported here). A statistically significant quadratic term was observed,  $p = 0.03$ ; see Figure 8. Participants who believed they were playing with a member of the research team transferred the least money ( $M = 5.02, SD = 2.43$ ) while participants who did not believe they were playing with a member of the research team ( $M = 6.04, SD = 2.89$ ) transferred the most. Participants who were uncertain about partner affiliation with the research team had average transfer amount of 5.33 ( $SD = 3.11$ ). Games-Howell post hoc analyses revealed the difference between participants who believed and those who did not believe they were playing with a member of the research team was marginal ( $p = .056$ ).

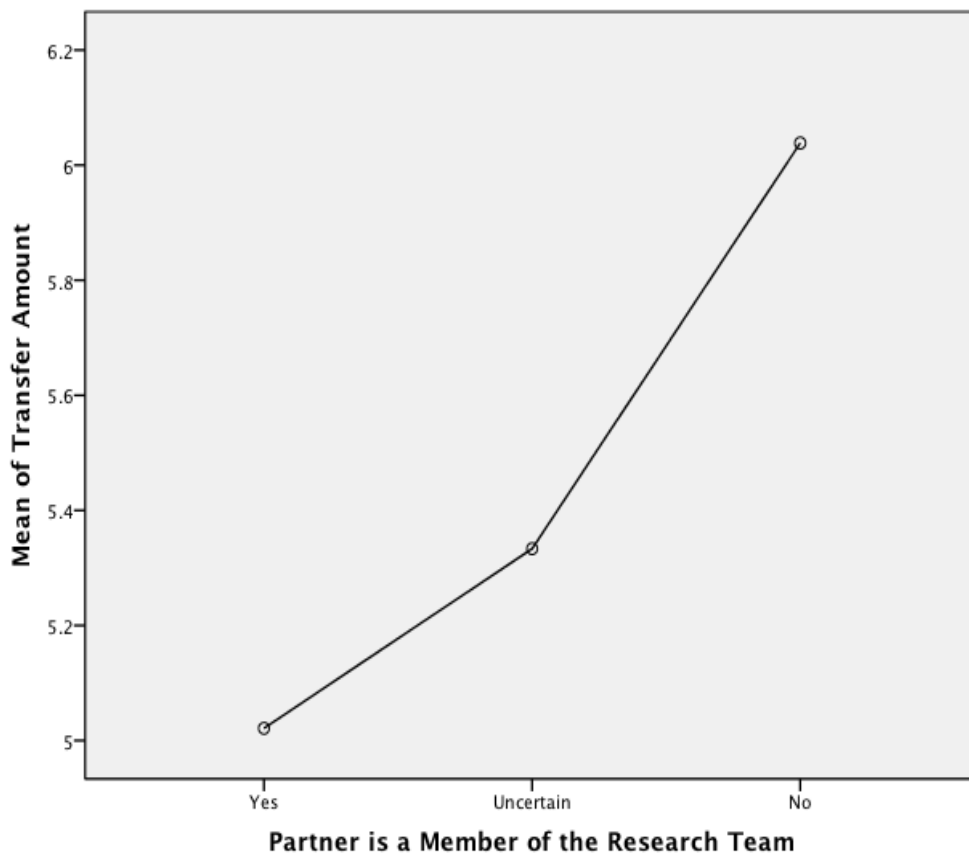


Figure 8. Mean transfer amount by partner affiliation with the research team.

### **3.2. Beliefs about Partner Humanness and High Betrayal Trauma**

A majority of the sample (N=156; 72%) reported the belief that their partner was not human while 16% (N=34) of participants believed they were playing the Trust Game with a human partner and 12% (N=26) were uncertain whether they were playing with a human partner. A statistically significant relationship was observed between HBT history and beliefs about partner humanness such that a higher percentage (21%, N=29) of participants without HBT histories reported the belief that their partner *was* human, compared to 7% (N=5) of participants who did report the experience of HBT,  $\chi^2(2)=7.42$ ,  $p=0.02$ , Cramer's V=0.18. While the majority of both the HBT (N=61) and NHBT (N=95) groups reported the belief that their partner was *not human*, the belief was more pronounced in the HBT group (80% vs. 68%); see Figure 9. A similar percent of the HBT (13%) and NHBT (11%) groups reported uncertainty about partner humanness.

#### **3.2.1. Beliefs about Partner Humanness and Willingness to Trust**

A one-way ANOVA did not find a significant difference among those who believed their partner was human (M=5.41, SD=2.57), those who did not believe their partner was human (M=5.84, SD=2.87), and those who were uncertain (M=5.15, SD=3.21) in the mean amount transferred during the trust game,  $F(2, 215)=0.83$ ,  $p=0.44$ ,  $\eta^2=0.01$ . Those who believed their partner was *not* human transferred the most while those who were uncertain transferred the least; see Figure 10.

#### **Analysis of Betrayal Awareness Research Questions and Hypotheses**

A picture drawn to depict sexual abuse of a child (i.e., Ambiguous Interpersonal Relationship (AIR) I Drawing) was used in the present study to examine the effect of HBT on betrayal awareness. Participants' responses to the question concerning the



content and meaning of AIR I were organized into six different categories. The categories that were created by Lindblom and Carlsson (2001) (i.e., child sexual abuse, adult sexual relationship, problematic child-adult relationship without sexual allusion,

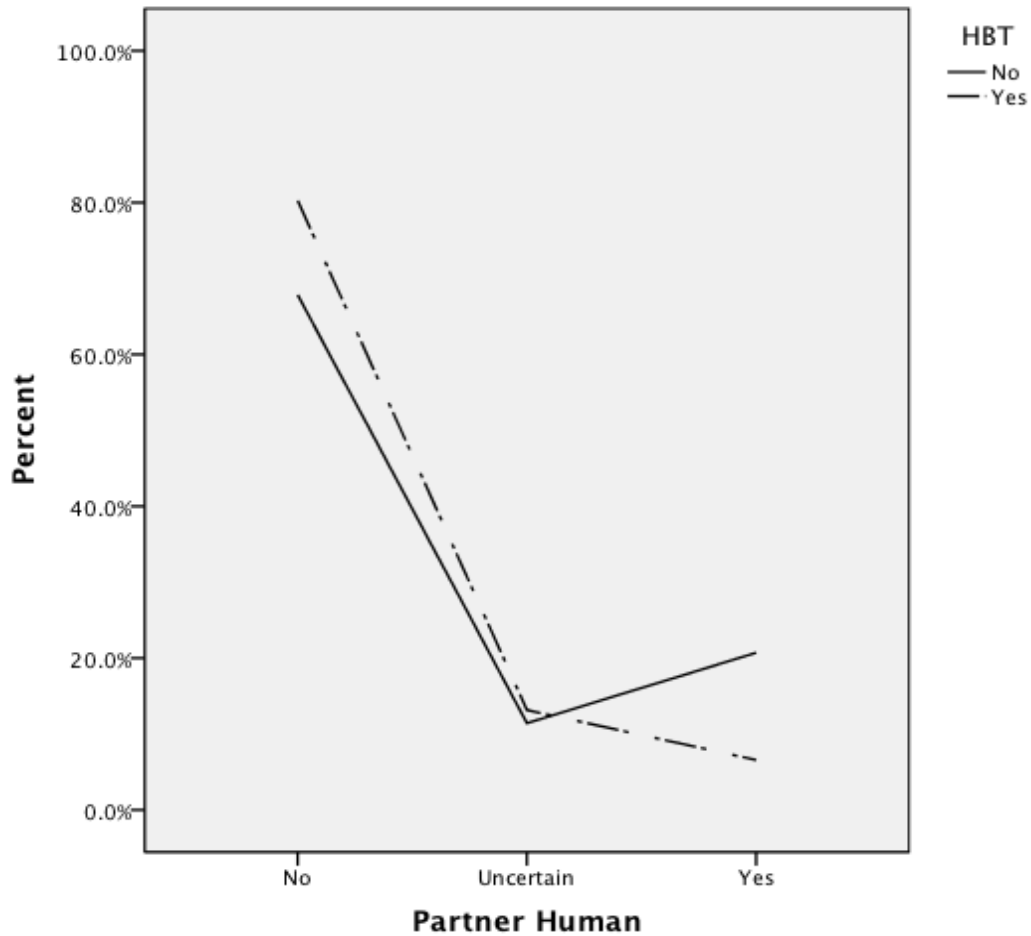


Figure 9. Beliefs about partner humanness by high betrayal trauma history.

safe child-adult relationship without sexual allusion, don't know) were used in the present study with the addition of a "literal description" category and modification of the adult sexual relationship category to include sexual relationships between adults and individuals at any stage of development. The addition and modification were made to accurately categorize participants' responses. To systematize categorization, a coding manual for each of the five categories was developed. Each participant's description of

the content and meaning of AIR I was categorized into one category based on the criteria outlined in Table 5. Two independent coders rated participants' interpretations of AIR I,

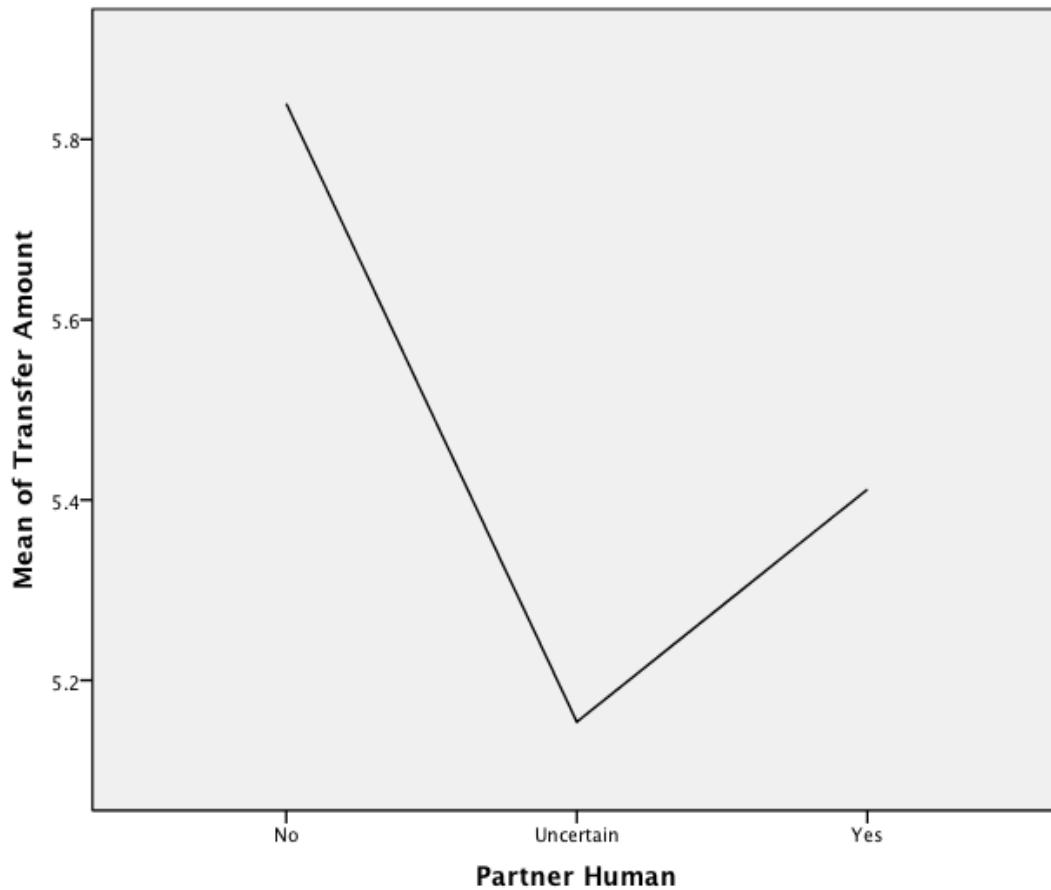


Figure 10. Beliefs about partner humanness by transfer amount.

the principal investigator and an undergraduate research assistant. The agreement between raters was 85%. The distribution of the responses for AIR I is displayed in Table 6.

**4.0. Betrayal Awareness Hypothesis 1. Compared to participants without a history of high betrayal trauma, participants with a history of high betrayal trauma will be less likely to infer child abuse in the drawing.**

A 2x3 chi square test of independence was used to test the relationship between AIR I drawing interpretation and HBT history. No participants provided interpretations

that fit into the “don’t know” and “literal interpretation” categories for the AIR I drawing. Given the low cell count for the “consensual sexual relationship” category, those

**Table 5.** Coding Manual for AIR I, II, & III Drawings

Response Category	Coding Criteria
<b>Child sexual abuse</b>	Respondent must 1) acknowledge the two individuals in the drawing are at different physical developmental levels; 2) note that the child is being touched sexually; 3) describe the adult in the drawing as a pedophile; or 4) report an unpleasant emotional reaction to the picture (e.g., “This picture makes me sick!” “Creep”)
<b>Consensual sexual relationship (formally adult sexual relationship)</b>	Respondent must 1) acknowledge the two individuals in the drawing at the same physical developmental level and 2) note the two individuals in the drawing are engaged in a consensual sexual act; or 3) report the two individuals are interacting in a nonsexual act.
<b>Problematic child-adult relationship without sexual allusion</b>	Respondent must 1) acknowledge the two individuals in the drawing are at different physical developmental levels; 2) recognize the child’s discomfort; and/or 3) report some level of improper, dishonorable, or unwanted behavior directed toward the child in the drawing (e.g., “The man is taking advantage of a child.”)* <i>Responses suggesting inappropriate behavior between an older and younger child were included in this category.</i>
<b>Safe child-adult relationship without sexual allusion</b>	Respondent must 1) acknowledge the two individuals in the drawing are at different physical developmental levels; and 2) indicate the absence of physical or emotional distress.
<b>Don’t know</b>	Respondent must 1) report uncertainty about the content and meaning of the drawing and 2) fail to provide any descriptive information about the individuals in the drawing and their interaction.
<b>Literal description</b>	Respondent must 1) provide a description void of any explanation of the meaning and content of the drawing.

responses (N=3) were excluded from the analysis. Exclusion from the analysis was necessary because cell counts below the minimum expected cell count renders chi square tests of independence unreliable. The results of the test revealed the two variables are independent of one another,  $\chi^2 (2) = 2.56, p=0.28, \Phi=0.11$ . A similar percentage of the HBT (43%) and NHBT (35%) groups saw child sexual abuse in the AIR I drawing. Analogous frequencies for the two groups (HBT and NHBT) were observed in the “problematic child adult relationship without sexual allusion” and “safe child adult relationship without sexual allusion” categories; see Table 7.

#### **4.0.1. Exploratory Analysis of AIR II and AIR III drawings.**

Although, the main hypotheses for the present study focused on the AIR I drawing, the relationship between AIR II and AIR III interpretation and high betrayal trauma history was explored. Two independent raters scored participants’ interpretations of AIR drawings II and III and agreement between the raters was 85% for AIR II and 73% for AIR III. The relationship between AIR II and high betrayal trauma history was found to be statistically significant,  $\chi^2 (2)=6.19, p=0.04, \Phi=0.19$  (excluding participants who provided responses that fell into the “adult sexual relationship”(N=0), “don’t know” (N=5) and “literal interpretation”(N=33) categories). Analyses revealed a higher percentage of the HBT group (57% vs. 39%) saw child sexual abuse in AIR II. However, a higher percentage of the NHBT group saw a problematic child adult relationship without sexual allusion (34% vs. 19%). A similar percentage of both groups (27% vs. 24%) saw a safe child adult relationship. When the “literal description” category was included in this analysis, the significance level dropped to  $p=0.09 (\chi^2 (3)=6.28)$ . The

“don’t know” category was not included in this analysis due to cell sizes less than the minimum expected count.

AIR III interpretations (including all content categories with the exception of “adult sexual relationship” (N=7) and “don’t know” (N=5) due to cell sizes below the minimum expected count) and high betrayal trauma history were found to be independent of one another,  $\chi^2(3)=3.44, p=0.33, Phi=0.13$ .

**Table 6.** Distribution of AIR I, II, & III Drawing Interpretations

Content Categories	Responses (%)		
	<u>AIR I</u>	<u>AIR II</u>	<u>AIR III</u>
Child sexual abuse	37 (N=80)	38 (N=81)	7 (N=15)
Adult sexual relationship	1 (N=3)	0 (N=0)	3 (N=7)
Problematic child-adult relationship without sexual allusion	32 (N=70)	24 (N=51)	35 (N=76)
Safe child-adult relationship without sexual allusion	29 (N=62)	21 (N=46)	35 (N=76)
Don’t know	0 (N=0)	2 (N=5)	2 (N=5)
Literal description	0 (N=0)	15 (N=33)	17 (N=37)

*Note.* N=1 response missing for AIR I interpretation category.

**4.1. Betrayal Awareness Hypothesis 2. There will be significant differences in anxiety change scores between participants with and without histories of high betrayal trauma.**

Prior to testing the hypothesis, descriptive statistics were examined for the entire sample. The mean of the initial anxiety level for all participants (N=216) was 11.54 (SD=3.37). Due to an error with the data collection software, post-anxiety scores were

not collected for 19 participants. The mean anxiety level for all participants (N=197) after interpreting AIR I, II, and III was 11.27 (SD=3.18).

Differences in initial anxiety level among the different AIR I drawing interpretation groups were investigated. A one-way ANOVA was used to investigate differences in initial anxiety. The difference between the AIR I interpretation groups in initial anxiety level was insignificant,  $F(3, 26.72)=1.36, p=0.28, \eta^2=.017$ . Due to a strong positive skew in the distributions of pre anxiety scores, the Browne-Forsythe statistic is reported.

**Table 7.** AIR I Drawing Interpretations by High Betrayal Trauma History

			High Betrayal Trauma History		Total
			NHBT	HBT	
Content Categories	Child sexual abuse	Count	48	32	80
		% within High betrayal trauma history	35.0%	42.7%	37.7%
	Problematic child adult relationship without sexual allusion	Count	44	26	70
		% within High betrayal trauma history	32.1%	34.7%	33.0%
	Safe child adult relationship without sexual allusion	Count	45	17	62
		% within High betrayal trauma history	32.8%	22.7%	29.2%
Total		Count	137	75	212
		% within High betrayal trauma history	100.0%	100.0%	100.0%

*Note.* Consensual sexual relationship responses (N=3) not included in the analysis. Cases with missing data (N=1) were excluded from the analysis. NHBT=reported no high betrayal trauma HBT= reported high betrayal trauma.

A one-way ANOVA was also used to evaluate the relationship among the AIR I drawing interpretation groups and change in anxiety level (post-anxiety score minus pre-anxiety score). Negative change scores indicate a decrease in anxiety from pre to post AIR I interpretation while positive values indicate an increase in anxiety.

Similar to Lindblom and Carlsson's (2001) finding that there were significant differences in anxiety increase between the AIR I drawing interpretation groups (child sexual abuse and problematic child adult relationship without sexual allusion groups reported experiencing higher levels of anxiety after interpreting the AIR I drawing), the results of the analysis indicated that there were significant differences among the groups in this sample,  $F(3, 192)=3.46, p=0.02, \eta^2=.051$ . Tukey HSD post-hoc comparisons revealed a significant difference in anxiety change scores between the "problematic child adult relationship without sexual allusion" group and the "safe child adult relationship with sexual allusion" group,  $p=0.03$ . While the latter group's overall anxiety score decreased after interpreting the AIR I drawing, the "problematic child adult relationship without sexual allusion" group's anxiety increased following exposure to the AIR I drawing. The difference between the "child sexual abuse" and "safe child adult relationship without sexual allusion" groups approached statistical significance,  $p=0.09$ . The mean change score of the "child sexual abuse" group did not differ significantly from the mean change score of the "consensual sexual relationship" group,  $p=0.53$ . The "problematic child adult relationship without sexual allusion" group did not differ from the "child sexual abuse" group,  $p=0.94$  or the "consensual sexual relationship" group,  $p=0.43$ .

The “consensual sexual relationship” (M= -1.33, SD=3.21) and “safe child adult relationship without sexual allusion” (M= -0.68, SD=1.54) groups showed anxiety decreases from pre to post AIR I drawing exposure while the “child sexual abuse”(M=0.03, SD=1.90) and “problematic child adult relationship without sexual allusion” (M=0.19, SD=1.51) groups showed anxiety increases; see Figure 11.

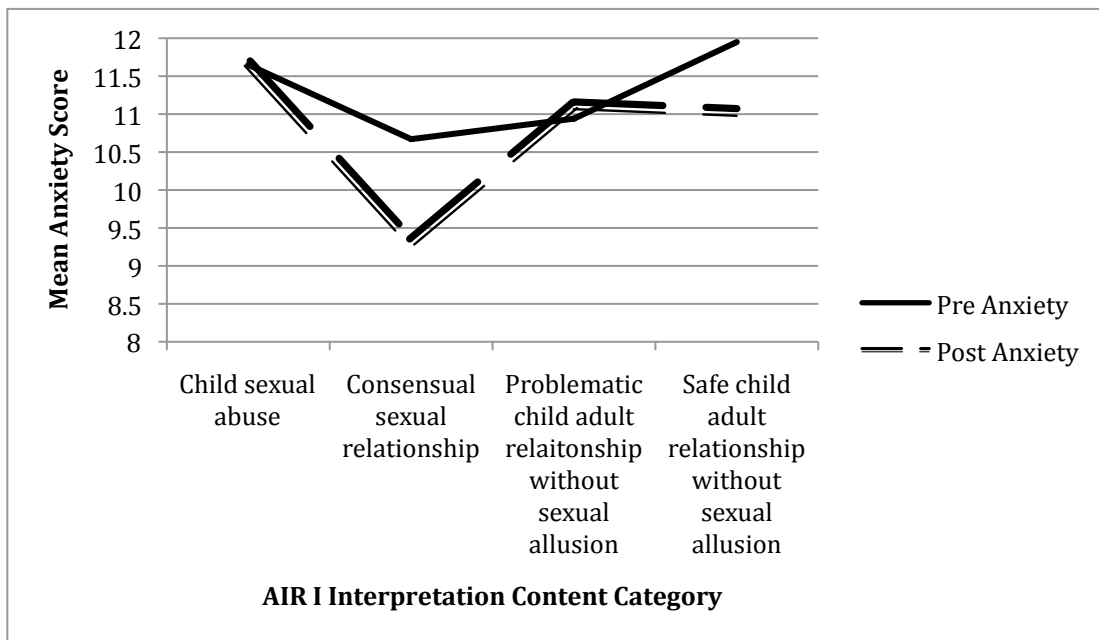


Figure 11. Pre and post anxiety scores for AIR I drawing interpretation categories. Data missing for 19 participants on post anxiety scores due to software malfunction.

An independent samples t-test (with a correction for unequal variances) was conducted to evaluate the hypothesis that HBT survivors would differ significantly from NHBT survivors with regard to anxiety change scores. The results of the analysis did not reveal statistically significant differences in anxiety change scores of HBT survivors and NHBT survivors,  $t(83.22) = -0.52, p = 0.61, Cohen's d = 0.11$ .



**4.2. Betrayal Awareness Hypothesis 3. High betrayal trauma and peritraumatic dissociation will be associated with reduced awareness for betrayal.**

An independent samples t-test was conducted to explore differences in peritraumatic dissociation between participants with and without histories of HBT. Due to a strong positive skew, Peritraumatic Dissociative Experiences Questionnaire (PDEQ) scores were log transformed. An independent samples t-test revealed higher rates of peritraumatic dissociation among HBT survivors (Untransformed:  $M=13.92$ ,  $SD=5.91$ ; Transformed:  $M=1.11$ ,  $SD=0.15$ ) compared to those without a history of HBT (Untransformed:  $M=11.99$ ,  $SD=3.52$ ; Transformed:  $M=1.06$ ,  $SD=0.09$ ),  $t(110.49) = -2.52$ ,  $p=0.01$ , *Cohen's d*=0.40 (equal variances not assumed). The pattern of means is displayed in Figure 12.

A logistic regression analysis was planned to test whether peritraumatic dissociation, high betrayal trauma history (frequency), and the interaction between high betrayal trauma history and peritraumatic dissociation significantly predict the likelihood of seeing a problematic vs. nonproblematic interaction in the AIR I drawing. For the purpose of the logistic regression, which requires that the dependent variable be dichotomous, the four content categories for AIR I were collapsed into two: problematic relationship ( $N=150$ ) (i.e., child sexual abuse and problematic child adult relationship) and safe relationship ( $N=65$ ) (i.e., consensual sexual relationship and safe child adult relationship without sexual allusion).

A logistic regression analysis found a test of the full model against a constant-only model was statistically significant,  $\chi^2(3)=9.14$ ,  $p=0.03$ . Nagelkerke's  $R^2$  of .059 suggests that ~6% of the variability in AIR I drawing interpretation is explained by the

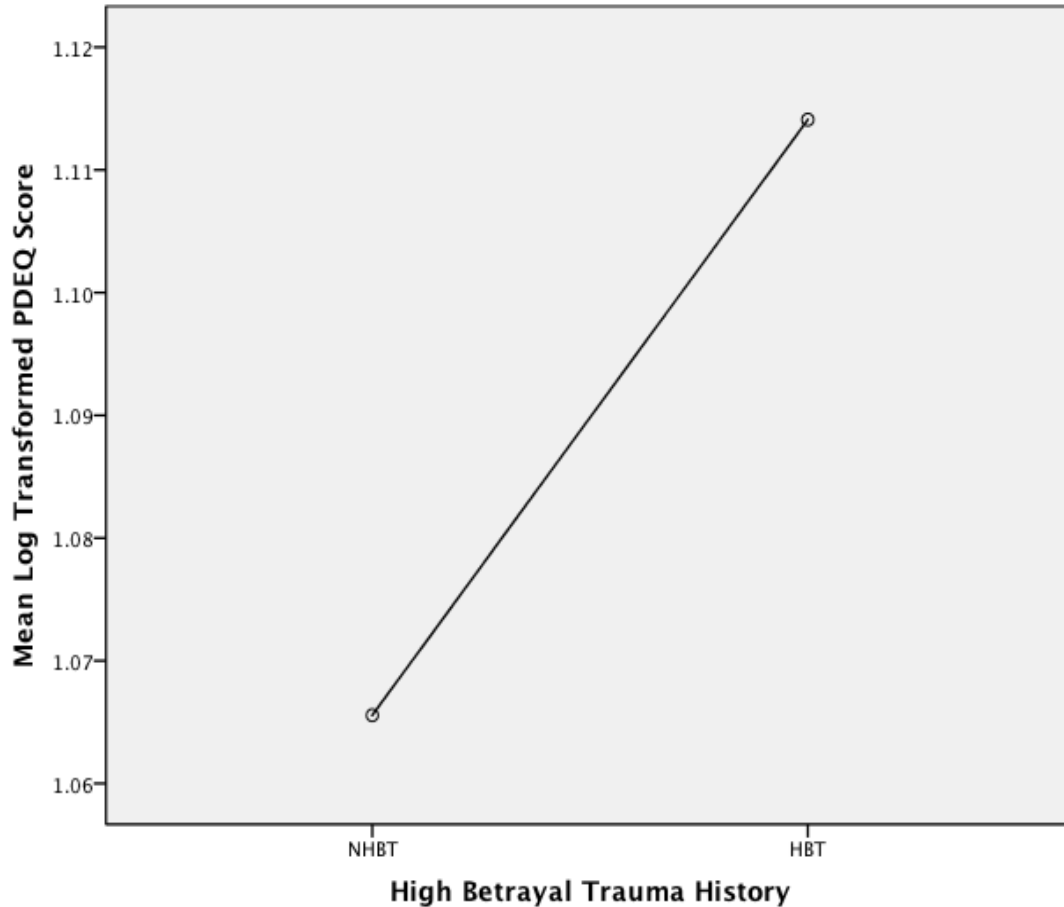


Figure 12. Peritraumatic dissociation by high betrayal trauma history.

model as a whole. The Homer-Lemeshow Goodness of Fit Test ( $\chi^2 = 4.12, p = .660$ ) supports the reliability of the model. Overall prediction success was 70.2% (96.7% for problematic relationship and 9.2% for safe relationship). The Wald test demonstrated that scores on the peritraumatic dissociation scale made a significant contribution to prediction ( $p = 0.045$ ). Frequency of HBT ( $p = 0.52$ ) and the interaction term ( $p = 0.87$ ) were not significant predictors; see Table 8. The Exp (B) value indicates that when peritraumatic dissociation score is raised by one unit, the odds of seeing a problematic relationship decreases by ~ 1 unit (Exp (B) = 0.92; 95% CI = 0.85-0.99).

**4.3. Betrayal Awareness Research Question 1. What is the impact of AIR I drawing interpretation categorization and high betrayal trauma history on anxiety change from pre to post AIR I drawing exposure?**

A two-way between groups ANOVA was conducted to examine the impact of AIR I drawing interpretation categorization and HBT history (HBT/NHBT) on anxiety change from pre to post (Anxiety Change Score calculated as follows: Post Anxiety Score -Pre Anxiety Score) AIR I drawing exposure. Participants were divided into two categories according to AIR I drawing interpretations (Group 1: problematic relationship; Group 2: safe relationship). There was a statistically significant main effect for AIR I drawing interpretation,  $F(1, 192) = 11.49, p = 0.001, \text{partial } n^2 = 0.06$ . Examination of means revealed the problematic group's overall anxiety increased ( $M = 0.10, SD = 1.73$ ) and was significantly different from participants in the safe group who experienced a lower level of anxiety after interpreting the AIR I drawing than before ( $M = -0.72, SD = 1.62$ ). The main effect for high betrayal trauma history [ $F(1, 192) = 0.25, p = 0.62$ ] and the interaction effect [ $F(1, 192) = 2.03, p = 0.16$ ] did not reach statistical significance. The pattern of means for the main effect of AIR I drawing interpretation is shown in Figure 13.

**Summary of Results**

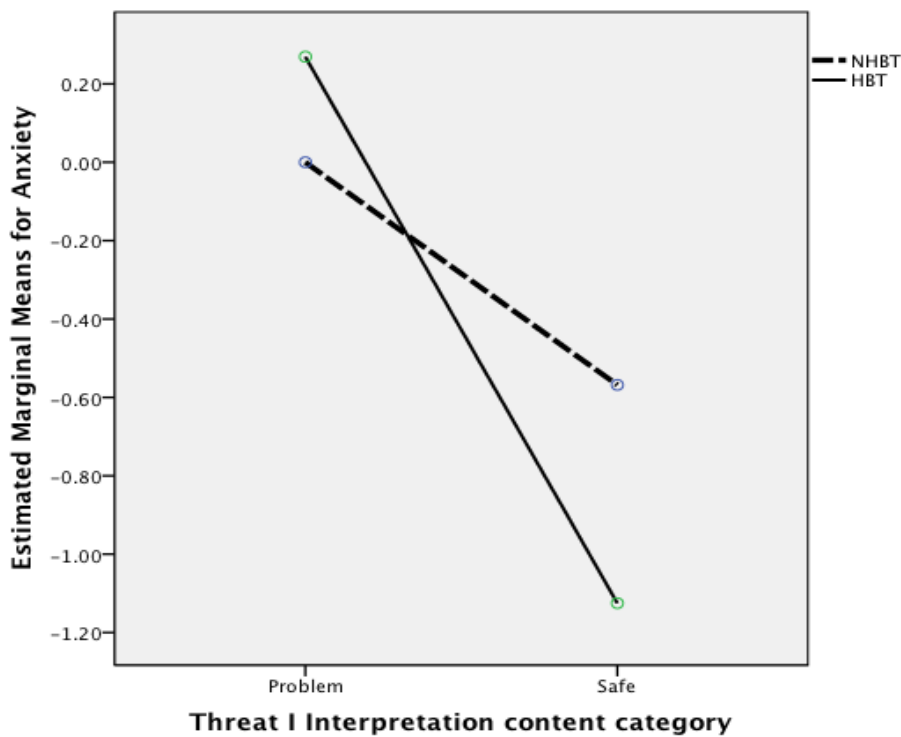
The findings of the current study suggest the experience of high betrayal trauma early in life increases risk for later high betrayal trauma. Results indicate a history of trauma high in betrayal influences self-reported trust attitudes. Moreover, participants with a history of HBT reported higher rates of peritraumatic dissociation while interpreting the AIR I drawing compared to those without a history of HBT.

Peritraumatic dissociation contributed significantly to the prediction of whether a participant saw a safe or problematic relationship in the AIR I drawing. A summary of the hypotheses and research questions examined and associated findings are presented in Table 9.

**Table 8.** Logistic Regression Model Predicting Probability of Seeing a Problematic Interaction in the AIR I Drawing

	Variables in Equation	B	Wald	Exp (B)
Step 1	Peritraumatic Dissociation Score	-0.08	4.03*	0.92
	HBT	0.27	0.41	1.31
	HBT by Peritraumatic Dissociation Score	-0.00	0.03	0.99

*Note.* B= unstandardized logit coefficients; Wald= Wald chi square test; Exp (B)= odds ratios (i.e., odds of seeing a problematic relationship in the AIR I drawing). \*p<0.05.



*Figure 13.* Main effect of AIR I drawing interpretation category on anxiety change from pre to post AIR I drawing exposure. Means for anxiety change scores (post anxiety score minus pre anxiety score) are on y-axis.

**Table 9.** Summary of Findings

#	Hypothesis/Question	Significance	Finding
1.0	Rates of Victimization	N/A	N/A
1.1	Trauma and Revictimization Hypothesis 1	*	Childhood high betrayal trauma was related to high betrayal trauma during adolescence and adulthood
1.2	Trauma and Revictimization Hypothesis 2	*	Adolescent high betrayal trauma was associated with increased risk for adult high betrayal trauma
2.0	Trust Hypothesis 1	NS	Initial transfer amount not impacted by trauma history
2.1	Trust Hypothesis 2	*	Significant linear trend; trust declines as trauma level of betrayal increases. High betrayal trauma participants reported the lowest rates of general trust while low betrayal trauma participants reported the highest rates of general trust. The difference between the NBT and HBT groups was marginally significant. HBT survivors reported the lowest levels of relational trust while the LBT groups reported the highest levels of relational trust. The difference between the two groups was marginal.
2.2	Trust Hypothesis 3	*	Significant interaction between HBT and transfer amount such that initial transfer amount significantly predicted willingness to play again for those who experienced HBT, but not for those who did not experience HBT. For the HBT group, transferring more money was associated with a greater likelihood of wanting to play again.
2.3	Trust Hypothesis 4	NS	No relationship between emotional reactions of betrayal and trauma history

2.4	Trust Hypothesis 5	~	A marginally significant relationship was found between dissociation and feelings of betrayal such that a higher percentage of the high dissociation group (18% vs. 8% of the low dissociation group) reported feeling betrayed by their partner's actions during the Trust Game. $p=0.08$
2.5	Trust Hypothesis 6	*	Significant positive correlation between transfer amount and scores on General Trust Scale (i.e., the more trusting you are, the more money you transfer). No relationship between transfer amount and relational trust (i.e., trust in a partner).
2.6	Trust Research Question 1	*	Transfer amount was significantly and positively correlated with scores on the Dyadic Trust Scale, $r(70) = 0.26, p=0.03$ , indicating individuals with early life trauma high in betrayal who believe strongly in the benevolence of their partner tended to transfer more money. For those who experienced early life HBT, transfer amount during Trust Game is most similar to relational trust.
3.0	Partner authenticity and high betrayal trauma history	*	Those without a history of HBT were more likely to report the belief that they were playing with an authentic partner.
3.0.1	Partner authenticity and willingness to trust (via transfer amount).	*	Those who believed partner was authentic were more trusting (via General Trust Scale scores) than those who were uncertain and those who believed partner was NOT authentic
3.1	Partner affiliation with research team and high betrayal trauma history	NS	No relationship between beliefs about partner affiliation with the research team and betrayal and trauma history

3.1.1	Partner affiliation with research team and willingness to trust (via transfer amount)	*	A statistically significant quadratic term was observed. Participants who believed they were playing with a member of the research team transferred the least while participants who did not believe they were playing with a member of the research team transferred the most. Participants who were uncertain about partner affiliation with the research team had were in the middle
3.2	Partner humanness and high betrayal history	*	Participants without a history of high betrayal trauma were more likely to believe partner was human.
3.2.1	Partner humanness and willingness to trust (via transfer amount)	NS	No relationship between beliefs about partner humanness and betrayal and trauma history
4.0	Betrayal Awareness Hypothesis 1	NS	No relationship between trauma history and AIR I drawing interpretation
4.1	Betrayal Awareness Hypothesis 2	NS <i>Note. Significant differences observed among AIR I interpretation categories.</i>	Significant omnibus effect showed difference in anxiety change scores among AIR I drawing interpretation categories. Tukey HSD post-hoc comparisons revealed a significant difference in anxiety change scores between the “problematic child adult relationship without sexual allusion” group and the “safe child adult relationship with sexual allusion” group, $p=0.03$ . While the latter group’s overall anxiety score decreased after interpreting the AIR I drawing, the “problematic child adult relationship without sexual allusion” group’s anxiety increased following exposure to AIR I. No differences by high betrayal trauma history observed.

4.2	Betrayal Awareness Hypothesis 3	*	Higher rates of peritraumatic dissociation among high betrayal trauma survivors compared to those without a history of high betrayal trauma. Logistic regression: Peritraumatic dissociation made a significant contribution to prediction of whether participants saw a problematic vs. safe relationship in the AIR I drawing. High betrayal trauma history did not contribute significantly to prediction.
4.3	Betrayal Awareness Research Question 1	*	Those who saw a problematic relationship in the AIR I drawing experienced increased anxiety and those who saw a safe relationship experienced decreased anxiety after interpreting the drawings.

*Note.* N/A=not applicable; NS=nonsignificant finding; \*statistically significant finding; ~marginally significant finding.



## CHAPTER IV

### DISCUSSION

The purpose of this dissertation was to examine the long-term consequences of trauma perpetrated by close others. The impact of high betrayal trauma (including experiences of emotional, physical and sexual abuse perpetrated by a close other) on trust tendencies and awareness for betrayal was explored in a cross-sectional study with a sample of young adult college students with and without histories of betrayal trauma. Revictimization rates were examined, and the impact of dissociation on trust and betrayal awareness was investigated. In prior research, written, audiotaped, and videotaped vignettes have been used to explore betrayal awareness among survivors of childhood sexual abuse with mixed results; this study used a novel method (i.e., a picture drawn to depict child sexual abuse) to examine betrayal awareness and suggests multiple forms of victimization perpetrated by close others (i.e., sexual, physical, and emotional victimization) impact awareness for betrayal. Further, while previously the relationship between trauma and trust has been explored through the use of self-report methods, the current study explored this link using a behavioral method. The findings from this study provide valuable information that will inform future research.

In the following discussion section, evidence consistent with the hypothesis that trust tendencies are impacted by high betrayal trauma will be considered. The association between behavioral and self-report measures of trust will be explored followed by an examination of the relationship among high betrayal trauma, trust, and dissociation. Next, findings pertaining to the relationship between high betrayal trauma and awareness for future interpersonal threats (i.e., betrayal awareness) will be discussed. This

discussion will be followed by an exploration of findings that examine the link between dissociation and betrayal awareness.

### **Behavioral Trust and High Betrayal Trauma**

Trust has been defined as "...faith in a person to act toward the survivor with compassion...the expectation that a person will be dependable." (Bryant-Davis, 2008, p. 44). Because perpetrators of early interpersonal trauma are often trusted persons, Betrayal Trauma Theory suggests these traumas impair the ability to decipher trustworthiness in others (Freyd, 1996; Zurbriggen & Freyd, 2004). Thus, having been violated by someone who was trustworthy, in the aftermath of trauma, a victim may question his/her ability to judge the trustworthiness of others, resulting in a tendency to trust no one. Alternately, a victim may become blind to betrayals in an effort to maintain attachments to perpetrators who are also seen as necessary for survival (Freyd, 1996). Betrayal blindness may cause the victim to trust individuals with untrustworthy character.

Based on the predictions made by Betrayal Trauma Theory, high betrayal trauma survivors were hypothesized to exhibit extreme interpersonal trust tendencies during the Trust Game. Extreme trust tendencies were operationalized as transferring very high or very low amounts during the Trust Game. Contrary to this hypothesis, high betrayal trauma survivors were not more likely to transfer extreme amounts during the Trust Game. This finding may be attributable to the method used to examine differences in trust tendencies. First, the relational dynamics during the Trust Game might have been too dissimilar from the contexts in which participants make trust decisions. Participants transfer money (i.e., display trust) in the Trust Game for the purpose of earning more than the initial \$10 research award. Trust decisions in other relational contexts are typically

made with different motives and varying amounts of prior information about the trustworthiness of the relational partner.

According to Lewicki, Tomlinson, and Gillespie (2006), individual predisposition and situational analysis are thought to be the principal sources of information that inform trust decisions. From this perspective, trust is a logical act that is determined by weighing probable gains and repercussions. However, it is probable that the artificial nature of the Trust Game lacked the relational components that are necessary for trust decisions to take place. The Trust Game used in this study was modified from previous versions in that the trust decisions were not made in a social environment. While data for the current study was collected online, previous research using the Trust Game have involved interaction between participants before they separated and asked to make trust decisions on a computer (e.g., Glaeser, Laibson, Scheinkman, & Soutter, 2000). Moreover, in previous studies, participants have been asked to play several rounds of the Trust Game, allowing for the development of trust or distrust via interactions with the partner (e.g., Meyer-Lindenberg, 2008). Thus, individuals approach the Trust Game in a similar manner that they would approach other trust situations involving the risk for social betrayal.

### **Behavioral Trust and Betrayal Aversion**

Similar to the present investigation, other researchers have used a variation of the Trust Game involving anonymous interactions among partners; however, participants were told whether they were playing with a computer or a human partner (e.g., Zak, 2008; Baumgartner, Heinrichs, Vonlanthen, Fischbacher, & Fehr, 2008). Baumgartner and colleagues (2008) observed participants' responses during the Trust Game depended

on whether they believed they are playing with a human (facing the risk of social betrayal) or a computer (facing nonsocial random risks). When informed they were playing with the computer, participants did not adjust behavior in response to feedback indicating their partner 50% of the time was betraying them. Behavior was adjusted in response to the same feedback when the partner was another human. The authors attribute this finding to the absence of betrayal aversion when risk is seen as “...probabilistic risk arising from a preprogrammed computer” (Baumgartner and colleagues, 2008, p. 644). Previous research has shown that individuals are less likely to trust when the outcome depends on another person and are more likely to trust when the outcome is due to chance or nature (Bohnet & Zeckhauser, 2004). This phenomenon has been termed *betrayal aversion*. According to economic theorists, individuals are more likely to take a risk when the outcome is controlled by nature because 1) they care about outcomes benefiting someone else; and 2) individuals prefer to avoid betrayal costs or psychological losses associated with betrayal that have importance above and beyond material costs (Bohnet, Greig, Herrmann, & Zeckhauser, 2008).

### **Role of the Experimental Manipulation in the Trust Game**

Categorical analyses revealed 69% of the sample in the present study did not believe they were playing with an authentic person and 72% of the sample believed they were not playing the Trust Game with a human partner. Thus, the findings of the current study may be attributable to the participants’ beliefs about whom they were playing with during the Trust Game as well as a lack of betrayal aversion. Absence of betrayal aversion might also explain the observation that the majority of the sample (86%) agreed

to play a second round of the Trust Game with no differences between participants with and without a history of high betrayal trauma.

An alternative explanation for the finding is that high betrayal trauma survivors do not differ from those without a history of high betrayal trauma on behavioral measures of general trust. It may be that early trauma impacts trust in a specific other (i.e., relational trust) as opposed to beliefs about the benevolence of people in general. However, previous research indicating differences in self-reported general trust using Rotter's (1967) Interpersonal Trust Scale (Gobin & Freyd, 2009) implicates a different explanation. It seems more likely that the way the behavioral measure in the present study was administered (i.e., lack of details regarding identity of the partner) was not sufficient to identify differences in general trust tendencies or the two groups do not differ with regard to behavioral trust.

To my knowledge, this was the first empirical examination of differences in general trust based on trauma history. Future research should examine differences in social (i.e., playing with a human partner) vs. non-social (i.e., playing with the computer) Trust Game behavior among individuals with interpersonal trauma histories. Such a study will allow for examination of the betrayal aversion hypothesis among survivors of high betrayal trauma. It may be the case that, as is implied by Betrayal Trauma Theory, the inborn betrayal aversion exhibited in previous studies, is subverted by high betrayal trauma and associated betrayal blindness. In contrast, a finding that participants with high betrayal trauma histories show a reduced willingness to transfer money in the Trust Game when they are told they are playing with a human partner, but not in a Trust Game with the computer determining investment returns would be interesting. Such a finding

would compliment self-reported tendencies towards distrust. It will be beneficial to examine this relationship manipulating the type of relational partner. It may be the case that, as the findings of the current study suggest, high betrayal trauma survivors are more willing to trust familiar vs. unfamiliar individuals. Previous research suggests the ability to detect risk is influenced by level of intimacy with the potential perpetrator (Vanzile, Tamsen, Testa, & Livingston, 2005). Theorists have suggested survivors of traumas high in betrayal have difficulties trusting based on findings that used self-report methods (e.g., Dillilo, 2001). It is important to understand how impaired trust manifests behaviorally to improve psychological interventions.

### **Impact of High Betrayal Trauma on Willingness to Play a Second Round of the Trust Game**

Based on Betrayal Trauma Theory, it was predicted that survivors of high betrayal trauma would persist in trusting (i.e., agree to play a second round of the trust game) despite receiving feedback that they had been betrayed by their partner (i.e., returned \$1.00). Analyses indicated that initial transfer amount predicted willingness to play again for participants with a history of high betrayal trauma. Tests of simple effects revealed high betrayal trauma survivors who transferred high amounts during the Trust Game had higher odds of wanting to play again than those who transferred low amounts. As predicted by Betrayal Trauma Theory, these results suggest betrayal blindness is a coping strategy often used by survivors of high betrayal trauma that may place them at risk for future victimization (Freyd, 1996). Initially transferring high amounts and having this trust betrayed by a partner who only returns \$1, then, subsequently agreeing to play a second round of the Trust Game places one at risk for further violation. The

finding that the majority of participants did not believe they were playing with a human partner calls into question the proposed implication of this finding and suggests future research should explore the relationship between behavior during the Trust Game, high betrayal trauma history, and revictimization risk.

It is plausible that high betrayal trauma survivors who initially transferred high amounts desired to play a second round of the trust game for the purposes of seeking revenge against the partner who betrayed them. However, the finding that the majority of the sample believed they were not playing with a human partner combined with research evidence suggesting betrayal aversion occurs only when another person is in charge of outcomes, as opposed to chance, makes this conclusion unlikely (see Bohnet & Zeckhauser, 2004). At the same time, because the majority of the sample did not believe they were playing with a human partner, they may have been willing to play a second round of the Trust Game because they are willing to accept risk when outcomes are determined by chance. Future behavioral research should explore the roles of betrayal aversion and high betrayal trauma in willingness to trust.

### **Self-Reported Trust and Behavioral Trust**

As predicted, a significant positive relationship was observed between self-reported trust on the General Trust Scale and transfer amount during the Trust Game. This indicates that the Trust Game may be measuring general trust. This finding is in line with previous work that has shown no relationship between trust decisions to trust a stranger during the Trust Game and behavioral and self-report risk attitudes (Eckel & Wilson, 2004). Moreover, this result indicates individuals who tend to believe in the benevolence of others also transfer more money during the Trust Game. Nonetheless, the

relationship between self-reported general trust and transfer amount during the Trust Game should be interpreted with caution due to the results indicating an overwhelming majority of the sample did not believe they were playing with a human partner. For the entire sample, a relationship was not observed between self-reported relational trust (i.e., trust in a romantic partner) and actions during the Trust Game.

Interestingly, a positive correlation was observed between transfer amount during the Trust Game and relational trust among the subset of the sample that reported the experience of high betrayal trauma. This finding indicates that, among childhood and adolescent high betrayal trauma survivors, transfer amount increased with higher levels of relational trust. Behavior during the Trust Game was not associated with self-reported levels of general trust for those who experienced early high betrayal trauma. This finding may suggest that high betrayal trauma survivors approached the partner in the Trust Game as they would a romantic partner. As stated earlier, conclusions regarding Trust Game findings are lacking in power and should be investigated in future analyses given the finding that the majority of participants did not believe they were playing with a human partner.

### **Self-Reported Trust and High Betrayal Trauma**

A marginally significant difference was found between self-reported general trust tendencies for participants with a high betrayal trauma history, compared to participants without a history of high betrayal trauma on the General Trust Scale. High betrayal trauma survivors reported lower levels of general trust. This finding is consistent with previous research showing higher levels of general mistrust among participants with experiences of early betrayal trauma (Lau & Kristensen, 2010; Gobin & Freyd, 2009;



Jurgens, 2005). A recent study revealed lower levels of oxytocin in adult women who reported experiences of childhood maltreatment (Heim, Young, Newport, Mletzko, Miller & Nemeroff, 2008). Thus, one explanation for this finding is that early childhood maltreatment decreases levels of the hormones that play seminal roles in mediating trust, resulting in decreased trust.

A significant difference in relational trust (i.e., trust in a romantic partner) was also observed between the low betrayal trauma and high betrayal trauma groups. High betrayal trauma survivors reported the lowest levels of relational trust. Taken together, the findings regarding self-reported trust and high betrayal trauma provide support for predictions made by Betrayal Trauma Theory. Specifically, the theory posits difficulties deciphering trustworthiness may create vulnerability for revictimization. In the present study, of all the trauma groups, high betrayal trauma survivors reported the highest levels of distrust in both romantic partners and other people in general. Lacking faith in the benevolence of close and non-close others could be evidence of the impact of early betrayal trauma. It is possible that survivors of early interpersonal trauma never fully develop the capacity to make accurate trust judgments or they lose faith in the reliability of their trust judgments, and, as a result, are unwilling to trust anyone. Future study is required to explore these ideas. Specifically, it will be important for future research to explore differences between willingness to trust and the ability to make accurate trust judgments. It is probable that both play a key role in later interpersonal functioning and revictimization risk among survivors of early betrayal trauma.

## **Trauma History, Dissociation, and Emotional Reactions to Partners' Actions During the Trust Game**

Contrary to trust hypothesis five, high dissociators (i.e., participants with DES scores equal to or greater than 20) were more likely than low dissociators to reported feelings of betrayal in response to their partners' failure to return more than \$1 during the Trust Game. Moreover, high dissociators were less likely than low dissociators to label partners reliable. Though only marginally significant, these findings suggest high dissociators in the present study had high levels of awareness for betrayal. Below, I offer to alternative explanations that might clarify the inconsistency of these findings with Betrayal Trauma Theory. First, Betrayal Trauma Theory asserts high betrayal trauma survivors who tend to rely on dissociation to cope with traumatic betrayals may have lower levels of awareness for betrayals. In the current study, the high dissociation group was composed of individuals who experienced traumas with low, medium, and high levels of betrayal in addition to individuals who did not report the experience of trauma at all (N=9). Given that the theory specifically predicts lower levels of awareness for survivors of high betrayal trauma who tend to use dissociation as a coping method, the theory may not be applicable to the group of individuals in the high dissociation group. Moreover, a cutoff score of 20 on the Dissociative Experiences Scale (DES) as opposed to a score of 30, which indicates pathological levels of dissociation, was used. Second, it is probable that the subset of high dissociators in the current study have highly dissociative experiences, but these experiences may not be pathological or occur in the context of trauma perpetrated by a close other. For instance, there is research evidence to suggest positive correlations between responses on the Dissociative Experiences Scale

(DES) and fantasy proneness (for a review see Merckelbach & Muris, 2000). Future research is warranted to clarify the link between dissociation and trust judgments.

### **Betrayal Awareness and High Betrayal Trauma**

Betrayal awareness was conceptualized as the ability to identify child sexual abuse in a picture drawn to depict sexual abuse of a child. In the original study using the AIR I drawing, three separate samples were asked to interpret the content and meaning of AIR I. In all three samples, the majority of participants displayed a high awareness for betrayal. 75%, 73%, and 69% of participants in each of the three samples saw child sexual abuse in the AIR I drawing (Lindblom & Carlsson, 2001). Similarly, the majority of participants in the current study (70.7%) displayed high levels of awareness for betrayal, however, this awareness manifested in reports of both child sexual abuse (37.7% of the entire sample) and problematic child adult relationship without sexual allusion (33% of the entire sample). Thus, while 37.7% of the sample saw child sexual abuse, 33% acknowledged the child's discomfort and were aware of some level of violation, but failed to identify the sexual nature of that abuse. These findings suggest some individuals, either consciously or unconsciously, fail to acknowledge the perpetration of child sexual abuse. As proposed by Lindblom & Carlsson (2001), denial or avoidance of child sexual abuse has the potential to impact the quality of social responses and care child sexual abuse survivors receive. Based on their findings, Lindblom and Carlsson (2001) concluded participants who do not see child sexual abuse use psychological defense strategies to avoid the discomfort that accompanies acknowledgement of sexual abuse to the child in the drawing. Future research should explore this theory.

In the current study, the contribution of high betrayal trauma history to awareness was examined. High betrayal trauma history was not found to contribute to awareness for child sexual abuse in the AIR I drawing, as hypothesized by betrayal awareness hypothesis 1. The findings of the current study suggest high betrayal trauma survivors and participants who did not report the experience of high betrayal trauma were nearly equivalent in their level of awareness for child sexual abuse. The two groups were also equivalent in their awareness of a problematic child-adult relationship in AIR I. It is possible that the visually presented betrayal stimulus was ambiguous or lacked sufficient power to detect differences in betrayal awareness between participants with and without histories of high betrayal trauma. However, Lindblom and Carlsson (2001) cite results from a study using verbally presented child sexual abuse as a betrayal stimulus that yielded results consistent with their findings, suggesting similarities between pictorial and written descriptions of sexual abuse. The findings in the current study imply a history of high betrayal trauma may not hinder the ability to detect potential threats or betrayal in one's environment. This conclusion aligns with empirical evidence suggesting reexperiencing (Marx & Soler-Baillo, 2005) and hyperarousal (Wilson, Calhoun, & Bernat, 1999) symptoms in PTSD may increase selective attention, thus aiding survivors of early trauma in identifying threats. However, other researchers suggest PTSD symptoms do not facilitate betrayal awareness, but rather interfere with the ability to disengage from trauma related threat cues, thus prolonging distress and increasing risk for revictimization (Pineles, Shipherd, Mostoufi, Abramovitz, & Yovel, 2009). Future research should explore the impact of PTSD symptomology on betrayal awareness. Furthermore, investigators should examine similarities and differences

between written, audiotape, and pictorial descriptions of child sexual abuse and the impact of these methods on awareness for betrayal.

### **Betrayal Awareness and Anxiety**

Participants who saw child sexual abuse or a problematic child adult relationship without sexual allusion had higher levels of anxiety after interpreting the AIR I drawing while participants who did not find the drawing problematic or unsafe reported lower anxiety scores after exposure to AIR I. The change scores between participants who saw a problematic interaction (including participants who saw a problematic child adult relationship and those who saw child sexual abuse) and those who saw a safe interaction (including those who saw a safe child adult relationship without sexual allusion and those who saw a consensual sexual relationship) were significantly different. This finding is similar to Lindblom and Carlsson's (2001) results revealing those who saw abuse of the child (i.e., a problematic relationship or child sexual abuse) had high levels of anxiety after exposure to AIR I. The findings suggest witnessing any type of violation of a child is distressing to young adults. It is likely that this level of anxiety is adaptive and results in increased arousal and action in support of preventing child sexual abuse. Bio-behavioral theories suggest humans have a tendency to fight or flee in response to perceived threat (see Taylor, 2006). An interesting avenue for future research would be exploration of the function of increased arousal in individuals who perceive child sexual abuse (i.e., the link between physiological arousal and behavioral response).

### **Betrayal Awareness, Dissociation, and High Betrayal Trauma**

While viewing the AIR I drawing, higher levels of peritraumatic dissociation were reported by participants with a history of high betrayal trauma. Peritraumatic

dissociation was also found to contribute significantly to prediction of awareness for betrayal in AIR I. This finding suggests peritraumatic dissociation may be a mechanism by which differences in levels of awareness for betrayal occurs. High betrayal trauma did not contribute (individually or in the interaction term) in this model. As suggested earlier, it may be the case that the AIR I drawing was underpowered to detect differences in betrayal awareness between those with and without histories of high betrayal trauma. It might also be the case that high betrayal trauma interacts with other variables (e.g., severity of abuse, revictimization status, etc.) to interfere with threat detection. Wilson, Calhoun, and Bernat (1999) found women with more than one experience of sexual victimization showed deficits in threat detection while women who reported only one experience of victimization did not show deficits. However, when post hoc analyses were conducted in the present study to explore the relationship between revictimization status (revictimized vs. not revictimized) and AIR I drawing interpretation using a 2x3 chi square test of independence, the two variables were found to be independent ( $\chi^2(2)=0.05, p=0.98$ ).

In the case of the drawing, it is possible that the type of sexual abuse was not sufficient to detect impairments in threat detection among high betrayal trauma survivors. Previous studies examining threat detection among college aged survivors of child sexual abuse have used date rape vignettes with characters around the same age as the participants as threat stimuli (e.g., Soler-Baillo, Marx, & Sloan, 2005). Participants may display deficits in threat detection when threat stimuli, particularly relevant to them, are presented. Orr, Lasko, Metzger, Berry, Ahern, and Pittman (1998) found women with histories of child sexual abuse showed higher levels of physiological reactivity during

script-driven imagery of personal abuse experiences as opposed to imagery of other stressful life experiences. Future research should explore this issue.

The significant contribution of peritraumatic dissociation to the prediction of betrayal awareness in the current study warrants future research on peritraumatic dissociation and betrayal awareness. Previous researchers have found a connection between deficits in social cognition and pathological dissociation (DePrince, 2005); however, it will be important for future empirical work to explore the unique contributions of pathological levels of dissociative experiences and peritraumatic dissociation to betrayal awareness.

### **Betrayal Awareness vs. Response to Betrayal**

The present study examined deficits in betrayal awareness. However, empirical support is mixed regarding the relative contributions of early high betrayal trauma to betrayal awareness and response to betrayals. Conceptual links between child sexual abuse and response to betrayals, as opposed to betrayal awareness, have been made, and empirical evidence is in support of this relationship (Messman-Moore & Brown, 2006). On the other hand, researchers have found a link between child sexual abuse and betrayal awareness (e.g., Marx et al., 2001). Based on a review of the literature, Messman-Moore and Brown (2006) suggest betrayal awareness may only contribute to revictimization risk when victimization is defined narrowly, only to include experiences of rape. They cite Marx et al.'s (2001) finding that poor risk detection (or betrayal awareness) was associated with an increased risk for subsequent revictimization when revictimization only included rape and did not encompass other forms of unwanted sexual contact. It is possible that differences between the high betrayal trauma groups in the current study

were not observed because high betrayal trauma encompassed emotional, sexual, and physical forms of victimization.

The results of the current study compliment findings suggesting no link between child sexual abuse and betrayal awareness (e.g., Meadows, Jaycox, Stafford, Hembree, & Foa, 1995). While the format of the current study did not allow for exploration of behavioral response to perceived threat, it may be the case that the lack of a finding between high betrayal trauma and impaired betrayal awareness lends support to the supposition that behavioral response to risk, rather than betrayal awareness, creates revictimization vulnerability. Future research should explore the unique impact of different types of abuse on threat detection and behavioral response to perceived threat.

### **Limitations and Future Directions**

The findings in the current study provide valuable information about the role of high betrayal trauma on two socio-emotional factors that can impair optimal interpersonal functioning: trust and betrayal awareness. Despite the foundation this work has set for future investigations, it is important to note general limitations of this study to enhance the impact of future research. First, the sample was composed of young adults currently enrolled in college. This high functioning sample may limit the generalizability of findings to community and clinical samples. Studies suggest individuals in community and clinical samples have more severe experiences of abuse that add a level of complexity to trust and betrayal awareness (see Classen et al., 2005). The limitations of the sample with regard to demographic variables such as age and socioeconomic status make it difficult to explore how the relationship among high betrayal trauma, trust, and betrayal awareness may vary as a function of such person level characteristics.



An overwhelming majority of participants identified as Caucasian. Studies have suggested the prevalence and consequences of experiences of high betrayal trauma may vary as a function of ethnic and/or cultural factors (e.g., Urquiza & Goodlin-Jones, 1994). Future research should examine trust and betrayal awareness among a sample of ethnically diverse women with histories of victimization. Theorists have suggested culturally specific historical traditions, religious teachings, and societal attitudes about ethnic minority groups may facilitate betrayal blindness and cause a survivor of abuse to persist in trusting a perpetrator (see Bryant-Davis, 2005). Moreover, research has suggested ethnic minority groups show increased reliance on social support and religious methods of coping with abuse (for a review see Bryant-Davis, Ullman, Tsong, & Gobin, in press). It is important to examine patterns of risk and resiliency within these groups to increase our understanding of how resiliency and risk are advanced.

The current investigation relied on retrospective self-reports of trauma history. Empirical evidence suggests the validity of the current findings could be threatened by false negative reports (Fergusson, Horwood, & Woodward, 2000). It may be important to corroborate participants' self-reports or use prospective research designs in future investigations.

As noted previously, to my knowledge, the present study was the first to use a behavioral measure of general trust to explore the impact of early trauma on later interpersonal functioning. Previous studies examining the impact of victimization experiences on trust have relied on self-report measures (e.g., Lau & Kristensen, 2010). While the self-report and behavioral measures of general trust related in predicted ways, failure of the Trust Game to distinguish between high betrayal trauma survivors (who

self-reported tendencies toward mistrust) and those who did not report a history of high betrayal trauma (who self-reported higher trust propensities) raises questions about its validity. It is possible, as discussed earlier, that the modified procedures for the Trust Game used in the present study detracted from the ability of the method to detect differences between the groups. A greater part of the sample did not believe they were playing with a human partner. Thus, it will be important for the procedures of the Trust Game in future investigations to honestly name the partner's identity (i.e., human or computer) in an effort to examine the roles of betrayal aversion and partner intimacy on actions during the Trust Game. Future studies might also benefit from the use of other behavioral measures of trust. The Trust Game, which is essentially an investment game, might depart too much from the type of trust decisions survivors of high betrayal trauma make that include vulnerability for revictimization. The use of behavioral measures of trust that include contextual factors that resemble dating environments (e.g., requiring participants to accept or refuse a date from a potential romantic partner as opposed to trading money) may be more fitting for explorations of trust among survivors of early high betrayal trauma.

Data for the current study was collected online. While participation in natural contexts may lessen response bias, the lack of structured participation may have rendered results obtained (especially Trust Game results) unreliable. In previous studies, Trust Game interactions are made through a computer interface, as in the current investigation; however, participants first report to a laboratory where the game instructions are explained in detail (e.g., Zak, Kurzban, & Matzner, 2004). In-person participation, as opposed to the web-based method, might have enhanced the effectiveness of the intended

deception (i.e., more participants may have believed they were actually playing with a human partner). To provide a more complete assessment of the effectiveness of the Trust Game in distinguishing trust tendencies between participants with and without histories of high betrayal trauma, future investigations should use face-to-face methods of data collection. Moreover, participants should actually play the Trust Game with an anonymous human partner.

Over half of participants in the current study agreed to play a second round of the Trust Game. Although betrayal aversion, a theory that suggests individuals are more willing to take risks when outcomes are determined by chance or nature as opposed to another human, may explain this finding, an alternative explanation is plausible.

Participants in the current study might have high levels of sensation seeking or risk taking propensities that account for their willingness to play a second round of the Trust Game. Although findings suggesting trust and risk decisions are distinct diminish the strength of this argument (see Eckel & Wilson, 2004), future investigations using the Trust Game will benefit from including a measure of sensation seeking. Such a measure would allow researchers to rule out this construct as a possible confound. Moreover, the addition of a question asking participants why they agreed or disagreed to play a second round of the Trust Game may help elucidate the factors that impact trust decisions.

Future investigations may also benefit from the use of an alternative threat stimulus to explore betrayal awareness. Significant differences between participants with and without high betrayal trauma histories were not observed in the present study. However, previous research using vignettes presented visually and via auditory methods has yielded differences in betrayal awareness between participants with and without

victimization histories (e.g., Soler-Baillo et al., 2005). The use of vignettes and a picture are similar in that both require participants to detect another person's risk (i.e., threat to the child in the drawing or the female in the date rape scenario). However, they differ in the level of identification that can be made with the victim. Given that many of the samples used to explore the link between betrayal awareness and victimization are composed of young adult females, it is possible that participants are more easily able to relate to the women in the date rape vignette compared to the child in the AIR I drawing. One might predict that level of identification with the victim influences betrayal awareness. Future research is warranted to explore this hypothesis.

Finally, it will be important to use longitudinal prospective research designs in future work (Macy, 2008). The relationships observed in the present study as well as the conclusions that can be drawn based on these observations are speculative due to the use of cross-sectional techniques. Lack of betrayal awareness and deficits in trust judgments may be both consequences of early childhood trauma perpetrated by close others and correlates of sexual victimization. Temporal information gleaned from longitudinal studies might help explicate the trajectory of trust and betrayal awareness among survivors of early abuse. For example, it might be possible to identify particular periods of development when developing beliefs about trust are most vulnerable to damage by high betrayal trauma. The results of the present study suggest individuals who experience high betrayal trauma during adolescence have the highest risk for future victimization, thus adolescence may be an optimal period of development in which to intervene on impaired trust and betrayal awareness. Such methods may also enhance our

understanding of how deficits in trust and betrayal awareness create risk for revictimization in addition to informing intervention methods.

There is substantial evidence that suggests not all survivors of early interpersonal trauma manifest psychological, emotional, and interpersonal consequences. Findings contrary to hypothesized relationships in the present study (e.g., no differences in betrayal awareness between participants with and without high betrayal trauma histories) may be evidence of notably resilient survivors of interpersonal trauma. As suggested by Macy (2008) it will be important for future research to explore both intrapersonal and contextual factors that create risk and promote resiliency.

The findings of this dissertation may be useful in the development of intervention methods with survivors of high betrayal trauma. The results suggest a history of high betrayal trauma effects trust tendencies and betrayal awareness in ways that may increase risk for revictimization. High betrayal trauma survivors reported higher levels of general and relational *distrust* compared to participants without a history of high betrayal trauma. Unwillingness to trust can negatively impact romantic relationships by preventing emotional closeness and vulnerability. Aversion to trusting others “in general” might prevent survivors from seeking social support or community and mental health services. The frequency with which survivors of betrayal trauma report trust difficulties and the potential negative consequences suggests repair of trust mechanisms would be beneficial to survivors. Thus, one line of intervention research could involve attempts to repair damaged trust mechanisms among survivors of high betrayal trauma.

Relational therapy models suggest broken trust abilities can only be repaired in the context of a secure, mutual, and respectful relationship. According to Holmes and

Rempel (1989) the key to interpersonal trust is that the person's behaviors are interpreted as reflecting his/her disposition as a person who is predictable, dependable, and committed to the relationship. Growth of trust depends on a willingness to demonstrate caring by taking risks, displaying emotional vulnerability, and sacrificing self-interests in the service of responding to a partner's needs. Based on the aforementioned "necessary components" for the development and growth of trust and the results of this investigation, an intervention study focused on teaching survivors how to determine whether individuals are trustworthy is warranted.

The findings of this dissertation also identify betrayal awareness and peritraumatic dissociation as potential targets for intervention research. Intervention research could involve teaching mindfulness techniques to survivors. Finally, because traumatic experiences violate victims' sense of safety (Bryant-Davis, 2005), intervention research teaching survivors how to identify safe situations and people, the associated affective states that accompany safety and danger, and effective behavioral responses to perceived threats could be beneficial. Existing interventions for survivors of early high betrayal trauma that target affective and interpersonal domains (e.g., Skills Training in Affective and Interpersonal Regulation, Cloitre et al., 2002; Dialectical Behavioral Therapy, Linehan, 1993) provide good foundations upon which to build the interventions suggested by the findings of this dissertation.

### **Summary and Conclusions**

This dissertation sought to examine the impact of high betrayal trauma on trust and betrayal awareness. Rates of revictimization and the role of peritraumatic dissociation in betrayal awareness were also examined. Compared to participants without

histories of high betrayal trauma, high betrayal trauma survivors self-reported tendencies towards distrusting people in general and romantic partners. Self-reported general trust was positively related to behavior during the Trust Game. High betrayal trauma survivors reported higher levels of peritraumatic dissociation while viewing a picture drawn to depict child sexual abuse. Peritraumatic dissociation contributed significantly to the predication of seeing a problematic relationship. Higher levels of peritraumatic dissociation were associated with decreased odds of seeing a problematic interaction in the drawing. These findings provide a solid foundation for future research aimed at understanding the ways high betrayal trauma impairs social and emotional functioning, and thus, increases risk for future victimization. Deficits in trust and betrayal awareness appear to contribute to revictimization risk. Intervention efforts for survivors of high betrayal trauma should aim to repair trust and betrayal awareness.

APPENDIX  
STUDY MEASURES

**Demographics Questionnaire**

Please answer the following questions.

1) Sex

- i) Male
- ii) Female
- iii) Other

2) Ethnicity

- i) Native American
- ii) Asian American
- iii) Pacific Islander
- iv) Hispanic
- v) African American
- vi) Multi-Ethnic
- vii) Caucasian
- viii) Other. Please specify.

3) Age

- |    |             |    |    |    |    |    |    |    |    |    |
|----|-------------|----|----|----|----|----|----|----|----|----|
| 16 | 17          | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28          | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
| 38 | 39          | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
| 49 | 50 or above |    |    |    |    |    |    |    |    |    |

4) Sexual Orientation

- i) Heterosexual
- ii) Gay
- iii) Lesbian
- iv) Bisexual
- v) Questioning

5) Current Relationship Status:

- i) Single
- ii) Dating
- iii) Engaged
- iv) Divorced
- v) Married
- vi) Widowed



6) Length of Current or Most Recent Relationship:

- i) 3 months or less
- ii) 3-6 months
- iii) 6-9 months
- iv) 9-12 months
- v) over 1 year

## **The Trust Game**

*You will be awarded a \$10 participation reward for completing this study.* In the first segment of the study, we would like you to play an Investment Game with an online partner. The game instructions are below. Please read them carefully.

### Investment Game Instructions

**1) START:** You will be asked to transfer a portion of your \$10 reward to your partner. You may choose to transfer ANY integer portion you would like.

NOTE: If you transfer money to your partner, the total amount available for distribution between the two of you increases because the transferred amount will be **TRIPLED** in his/her account.

**2)** The amount you choose to transfer to your partner will be tripled and added to his/her account. For example, if you send your partner \$5, he/she will end up with \$25---\$10 plus \$15 (three times \$5).

**3) END:** Your partner will then be asked to transfer a portion of the earnings back to you. He/she may choose to transfer any integer portion of the earnings into your account. For example, if your partner ended up with \$25, he/she could transfer \$10 back to you, leaving the both of you with \$15 in your accounts; \$5 more than if you would have transferred no money to your partner.

Instructions for retrieval of your research participation reward will appear on a screen at the conclusion of the study.



**You currently have \$10.00 in your account.**

Please transfer a portion of your award to your partner. The amount you transfer will be **tripled** in your partner's account.

\$0.00

Transfer

-- Transferring Money --

...

**Transfer Successful!**

Your partner is now deciding how much to return to you.



Your partner has returned: \$1.00 to you.



Your partner would like to play again!



Do you accept your partner's request for another game?

Yes

Respond

-- Waiting for response from partner --

....

Sorry, Your partner has logged out.

Thank you for playing.  
Please answer the questions below.

### Game Reactions Questionnaire I

The following questions will give you an opportunity to tell us about your experience during the Investment Game. Please answer openly and honestly.

1. Your partner chose to return \$1 to you. How do you feel about this?

- a. Happy
- b. Disappointed
- c. Satisfied
- d. Betrayed
- e. Ashamed
- f. Frustrated
- g. Content
- h. Indifferent
- i. Gracious
- j. Hurt
- k. Angry
- l. Other. Please Explain.

2. Why do you feel this way?

3. Which term best describes your partner?

- a. Reliable
- b. Unreliable

4. Which term best describes your partner?

- a. Trustworthy
- b. Untrustworthy

## **Game Reactions Questionnaire II**

We are interested in how you experienced your partner while you were playing the Investment Game. For each of the statements below please indicate if it was how you felt.

1. While playing the game I felt I was playing with an authentic person, playing the game for real.
  - a. Yes
  - b. Uncertain
  - c. No
  
2. While playing the game I felt my partner was part of the research team, only pretending to be really playing.
  - a. Yes
  - b. Uncertain
  - c. No
  
3. While playing the game I felt my partner wasn't even human – just a computer program.
  - a. Yes
  - b. Uncertain
  - c. No

### **Brief Betrayal Trauma Survey (BBTS)**

For each item below, please indicate whether you have experienced the event described during each of the three time periods. You may choose MORE THAN ONE response.

For example, if you experienced an item both before the age of 12 and after the age of 18, you would mark the box next to "Yes, before I was age 12" and "Yes, when I was 18 or older". If you experienced an item only at age 15, you would only mark the box next to "Yes, when I was 12-17". If you experienced an event during all three time periods, you would mark the last three boxes. If you have never experienced the event described, ONLY mark the box next to "No, never".

1. You were in a major earthquake, fire, flood, hurricane, or tornado that resulted in significant loss of personal property, serious injury to yourself or a significant other, the death of a significant other, or the fear of your own death.
  - a. No, never
  - b. Yes, before I was 12
  - c. Yes, when I was 12-17
  - d. Yes, when I was 18 or after
  
2. You were in a major automobile, boat, motorcycle, plane, train, or industrial accident that resulted in similar consequences.
  - a. No, never
  - b. Yes, before I was 12
  - c. Yes, when I was 12-17
  - d. Yes, when I was 18 or after
  
3. You witnessed someone with whom you were very close (such as a parent, brother or sister, caretaker, or intimate partner) committing suicide, being killed, or being injured by another person so severely as to result in marks, bruises, burns, blood, or broken bones. This might include a close friend in combat.
  - a. No, never
  - b. Yes, before I was 12
  - c. Yes, when I was 12-17
  - d. Yes, when I was 18 or after
  
4. You witnessed someone with whom you were not so close undergoing a similar kind of traumatic event.
  - a. No, never
  - b. Yes, before I was 12
  - c. Yes, when I was 12-17
  - d. Yes, when I was 18 or after



5. You witnessed someone with whom you were very close deliberately attack another family member so severely as to result in marks, bruises, blood, broken bones, or broken teeth.

- a. No, never
- b. Yes, before I was 12
- c. Yes, when I was 12-17
- d. Yes, when I was 18 or after

6. You witnessed someone with whom you were not so close deliberately attack a family member that severely.

- a. No, never
- b. Yes, before I was 12
- c. Yes, when I was 12-17
- d. Yes, when I was 18 or after

7. You were deliberately attacked that severely by someone with whom you were very close.

- a. No, never
- b. Yes, before I was 12
- c. Yes, when I was 12-17
- d. Yes, when I was 18 or after

8. You were deliberately attacked that severely by someone with whom you were not close.

- a. No, never
- b. Yes, before I was 12
- c. Yes, when I was 12-17
- d. Yes, when I was 18 or after

9. You were made to have some form of sexual contact, such as touching or penetration, by someone with whom you were very close (such as a parent or lover).

- a. No, never
- b. Yes, before I was 12
- c. Yes, when I was 12-17
- d. Yes, when I was 18 or after

10. You were made to have such sexual contact by someone with whom you were not close.

- a. No, never
- b. Yes, before I was 12

- c. Yes, when I was 12-17
- d. Yes, when I was 18 or after

11. You were emotionally or psychologically mistreated over a significant period of time by someone with whom you were very close (such as a parent or lover).

- a. No, never
- b. Yes, before I was 12
- c. Yes, when I was 12-17
- d. Yes, when I was 18 or after

12. You were emotionally or psychologically mistreated over a significant period of time by someone with whom you were not close.

- a. No, never
- b. Yes, before I was 12
- c. Yes, when I was 12-17
- d. Yes, when I was 18 or after

### **General Trust Scale (GTS)**

We are interested in learning about your attitudes and beliefs. Please answer the statements honestly. Be sure to read each item carefully and show your beliefs by marking the appropriate number in the blank.

**1=Strongly Disagree**

**2= Disagree**

**3= Neither Agree nor Disagree**

**4=Agree**

**5=Strongly Agree**

---

1. \_\_\_\_\_ Most people are basically honest.
2. \_\_\_\_\_ If given a chance, most people would try to take advantage of you.
3. \_\_\_\_\_ You can't trust strangers anymore.
4. \_\_\_\_\_ When dealing with strangers, you should be on your guard before trusting them.
5. \_\_\_\_\_ In general, you can rely on strangers.
6. \_\_\_\_\_ Most people are looking out for themselves and are not helpful.
7. \_\_\_\_\_ In general, most people behave responsibly toward others.
8. \_\_\_\_\_ Most people are compassionate toward other persons.
9. \_\_\_\_\_ At work, most people pursue only their own interests.
10. \_\_\_\_\_ Most people have no difficulty telling lies.

### **Dyadic Trust Scale (DTS)**

We are interested in your perspective. Please read each question carefully and indicate the degree to which you agree with each statement. If a question involves the term "partner", it refers to a current romantic partner (or a past romantic partner if you are not currently involved with anyone).

**1= Strongly Disagree**

**2= Disagree**

**3= Neither Agree nor Disagree**

**4= Agree**

**5= Strongly Agree**

1. My partner is primarily interested in his (her) own welfare.
2. There are times when my partner cannot be trusted.
3. My partner is perfectly honest and truthful with me.
4. I feel that I can trust my partner completely.
5. My partner is truly sincere in his (her) promises.
6. I feel that my partner does not show me enough consideration.
7. My partner treats me fairly and justly.
8. I feel that my partner can be counted on to help me.

### **Dissociative Experiences Scale (DES)**

This questionnaire consists of twenty-eight questions about experiences that you may have in your daily life. We are interested in how often you have these experiences. It is important, however, that your answers show how often these experiences happen to you when you are not under the influence of alcohol or drugs. To answer the questions, please determine to what degree the experience described in the question applies to you and click the number to show what percentage of the time you have the experience.

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

8. Some people are told that they sometimes do not recognize friends or family members.

Indicate what percentage of the time this happens to you.

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

9. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). Indicate what percentage of the time this happens to you.

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

10. Some people have the experience of being accused of lying when they do not think that they have lied. Indicate what percentage of the time this happens to you.

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

25. Some people find evidence that they have done things that they do not remember doing. Indicate what percentage of the time this happens to you.

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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



0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

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

0%-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100%

(Never)

(Always)

**Pre /Post Drawings Anxiety Questionnaire**

How much are you experiencing each of the following RIGHT NOW (at the present moment)?

**Having a headache**

Not at all                      Somewhat                      Moderately                      A lot

**Having a stomachache**

Not at all                      Somewhat                      Moderately                      A lot

**Feeling nervous**

Not at all                      Somewhat                      Moderately                      A lot

**Feeling dizzy**

Not at all                      Somewhat                      Moderately                      A lot

**Feeling afraid of men**

Not at all                      Somewhat                      Moderately                      A lot

**Feeling afraid of women**

Not at all                      Somewhat                      Moderately                      A lot

**Feeling dirty**

Not at all                      Somewhat                      Moderately                      A lot

**Having trouble breathing**

Not at all                      Somewhat                      Moderately                      A lot

**Ambiguous Interpersonal Relationship (AIR) Drawing I**

Using no more than 15 words, please describe what is happening in the picture.



**Peritraumatic Dissociative Experiences Questionnaire (PDEQ)**

Now please think back to the pictures you just viewed. Keeping that experience in mind, please complete the items below by selecting the choice that best describes your experiences and reactions during the time you were viewing the pictures and immediately afterward. If an item does not apply to your experiences, please select " Not at all true".

- 1. I had moments of losing track of what was going on- I "blanked out" or "spaced out" or in some way felt that I was not part of what was going on.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

- 2. I found that I was on "automatic pilot"- I ended up doing things that I later realized I hadn't actively decided to do.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

- 3. My sense of time changed- things seemed to be happening in slow motion.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

- 4. What was happening seemed unreal to me, like I was in a dream or watching a movie or play.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

- 5. I felt as though I were a spectator watching what was happening to me, as if I were floating above the scene or observing it as an outsider.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

6. There were moments when my sense of my own body seemed distorted or changed. I felt disconnected from my own body, or that it was unusually large or small.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

7. I felt as though things that were actually happening to others were happening to me- like I was being trapped when I really wasn't.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

8. I was surprised to find out afterward that a lot of things had happened at the time that I was not aware of, especially things I ordinarily would have noticed.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

9. I felt confused; that is, there were moments when I had difficulty making sense of what was happening.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

10. I felt disoriented; that is, there were moments when I felt uncertain about where I was or what time it was.

1	2	3	4	5
Not at all true	Slightly true	Somewhat true	Very true	Extremely true

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