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# INTERPERSONAL SENSITIVITY, FRIENDSHIP, AND POSTTRAUMATIC STRESS AMONG VICTIMS OF CHILD MALTREATMENT

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INTERPERSONAL SENSITIVITY, FRIENDSHIP, AND  
POSTTRAUMATIC STRESS AMONG VICTIMS OF CHILD

MALTREATMENT

BY

CAROLINE SEGAL

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE

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## Abstract

The relationship between childhood maltreatment and adverse socioemotional and mental health outcomes is well documented in the literature. Children who experience maltreatment are at higher risk for interpersonal deficiencies, social isolation, and posttraumatic stress. The literature suggests that victims of childhood maltreatment are at risk of developing high interpersonal sensitivity, meaning they struggle to appropriately interpret social cues. However, extant research has not focused on the impact of interpersonal sensitivity on psychosocial outcomes among victims of childhood maltreatment. The current study examined interpersonal sensitivity as a potential mediator between childhood maltreatment and friendship quality as well as between childhood maltreatment and posttraumatic stress.

Additionally, the majority of the literature on childhood maltreatment to date has not differentiated between childhood neglect and childhood abuse when analyzing childhood maltreatment, despite their differing clinical presentations. The current study examined the differential contributions of childhood abuse and childhood neglect to interpersonal functioning and posttraumatic stress in college students.

Participants were 232 college students at a large, northeastern university. They completed a packet of self-reported questionnaires. Participants received extra credit in their undergraduate psychology course for their participation. Participants were categorized into one of four conditions: individuals with a history of childhood abuse, individuals with a history of childhood neglect, individuals with a history of both childhood abuse and neglect, and individuals with no maltreatment history. Data were analyzed by ordinary least squares regressions, MANCOVAs, and ANCOVAs. Results

supported the hypotheses that interpersonal sensitivity partially mediates both the relationships between childhood maltreatment and friendship quality and between childhood maltreatment and posttraumatic stress. Such results suggest that interpersonal sensitivity adversely affects the quality of friendship and development of posttraumatic stress among individuals with increasing exposure to childhood maltreatment, consistent with a growing body of literature supporting that these effects exist. Results did not support the hypothesis that abuse has a more adverse impact on posttraumatic stress than neglect, nor that neglect has a more adverse impact on posttraumatic stress than abuse, but did find that doubly maltreated individuals were significantly more impaired on both outcome variables than non-maltreated individuals. This finding suggests that increasing exposure to childhood maltreatment leads to more severe adverse psychosocial outcomes, contributing to a growing body of literature supporting that increased maltreatment exposure has notable adverse impacts on interpersonal and psychological functioning. The limitations of this study and future directions for this line of research are discussed.

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## Introduction

The Child Abuse Prevention and Treatment Act (CAPTA) defines childhood maltreatment as abuse or neglect characterized by “any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation; or an act or failure to act, which presents an imminent risk of serious harm” (US Department of Health & Human Services, 2010). In 2011, 677,000 US children were reported as victims of child abuse and neglect, equivalent to 9.1 victims per 1,000 children in the country. 79% of these children were neglected, 18% physically abused, and 9% sexually abused (US Department of Health & Human Services, 2011). The true number of maltreatment victims is likely higher than reported here, as many cases of childhood maltreatment are undocumented.

The relationship between childhood maltreatment and long-term psychological sequelae is well documented in the literature (Appleyard, 2010; Rodriguez, 2006; Kim, 2004; Guay, 2006; Folger & Wright, 2013; Jonkman, 2013; Powers, 2009). Victims of childhood maltreatment are at increased risk for depression, anxiety, personality disorders, and symptoms of posttraumatic stress disorder (Stige, 2013; Cohen, 2014; Sperry & Widom, 2013; Moore, 2013; Milot, 2010). Childhood maltreatment has also been linked with alcohol abuse, eating disorders, low levels of self-worth, and self-injurious and suicidal behavior, particularly when compounded by severe posttraumatic stress symptomatology (Folger & Wright, 2013; Moore, 2013). Psychopathological consequences of childhood maltreatment tend to increase as cumulative exposure to abuse, including considerations of severity, duration, and multiple forms of abuse, increases (Folger & Wright, 2013).

*Domains of Impairment.* The National Child Traumatic Stress Network (NCTSN) has identified seven domains of long-term impairments for children who experience complex traumatic experiences such as childhood maltreatment (nctsn.org). One of these domains is attachment and relationships. Adaptive development of the parent-child attachment relationship is dependent on the parent's warmth, coherence, and predictability, particularly during periods of distress. Abused and neglected children typically struggle to develop a healthy attachment relationship with a caregiver, leaving them vulnerable to distress (Tarabulsy, 2008). According to Bowlby (1959), the primary purpose of the attachment relationship is to protect against threat, particularly the threat of losing the attachment figure. Children who are maltreated by a caregiver face a difficult paradox: they depend on their caregiver to survive; yet their caregiver represents a threat to their survival (Brothers, 2014). The dilemma of whether to approach or avoid can lead a child to experience chronic levels of fear (fear to be near the caregiver, fear to be away from the caregiver), which can have deleterious effects on the attachment relationship (Stronach, 2011). According to a study by Tarabulsy (2008), the majority of maltreated children demonstrate disorganized attachment to their primary caregiver. Disorganized attachment is evidenced by unclear or nonexistent strategies for seeking comfort from a caregiver, which can manifest in fear, hostility, affect dysregulation, and disengagement (Stronach, 2011). Potential ramifications of a maladaptive attachment relationship include difficulties in romantic relationships, friendships, and relationships with authority figures throughout the lifespan (nctsn.org; Fonagy, 2007; Bowlby, 1982; Alink, 2012; Jonkman, 2013; Dietrich, 2007).

Other domains of impairment that are relevant to the current study include self-

concept, cognition, and affect regulation. Children with complex trauma histories may internalize negative experiences with and messages from caregivers, causing impairments to the self-concept (Harvey, 2012). Such impairments are evidenced by tendencies towards negative, internal attributions and patterns of self-blame, guilt, shame, and poor self-esteem (nctsn.org; Jonkman, 2013; Rodriguez, 2006; Runyon & Kenny, 2002; Appleyard, 2010). These maladaptive thought patterns can have significant repercussions on interpersonal functioning, including lack of trust and broadly negative perceptions of others (Pearlman & Courtois, 2005; Harvey, 2012). From an affective perspective, children who experience complex trauma are at risk for over-internalizing stress, which can lead to impairments in emotion regulation. Difficulty regulating emotions may disrupt interpersonal functioning and trigger psychological sequelae (nctsn.org; Pennebaker, 1985 Guay, 2006; Toth & Cicchetti, 2013; Jonkman, 2013; Moore, 2013).

*Posttraumatic Stress.* The consideration of childhood maltreatment as a possible antecedent to a diagnosis of posttraumatic stress has been debated, as the Diagnostic Statistical Manual-5 defines a trauma as exposure to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence (American Psychiatric Association, 2013). Although this covers certain types of child maltreatment, including physical and sexual abuse, it does not encompass emotional abuse or experiences of neglect, which are present in the vast majority of victims of child maltreatment, yet are considered non-clinical and relegated to the V-Code section of the manual (Milot, 2010). Although these forms of child maltreatment do not necessarily involve a real or perceived threat to life, the relationship between emotional abuse or neglect and the symptoms of posttraumatic stress disorder, excluding Criterion A of the DSM-5, is clinically

significant (Jonkman, 2013; Milot, 2010; De Bellis 2009). Maltreated children have been shown to exhibit distress, arousal, cognitive and affective impairments, somatization, avoidance, and dissociation, consistent with posttraumatic stress disorder (PTSD) (Folger & Wright, 2013; Jonkman, 2013; Milot, 2010; Afifi, 2012; Higgins & McCabe, 2001; Darwish, 2001; Shaffer, 2009; Wright, 2009; Powers, 2009; Cohen, 2014). Among victims of childhood maltreatment, posttraumatic stress symptoms such as emotional numbing and dissociation may further lead to social withdrawal and isolation, and symptoms such as hyperarousal and irritability may increase interpersonal conflicts and disrupt relationship stability (Nietlisbach & Maercker, 2009; Alink, 2012; Mathews, 2009). Therefore, symptom profiles of posttraumatic stress disorder resultant to childhood abuse and/or neglect are a significant concern.

*Interpersonal functioning.* Childhood maltreatment has been consistently linked to interpersonal deficiencies (Guay, 2006; Kaniasty, 2011; Milot, 2010; Bruce, 2010; Powers, 2009; Darwish, 2001). Alink et al. (2012) found that children who had been maltreated were more withdrawn and exhibited lower levels of prosocial behavior than children who had not been maltreated. Maltreated children also have more social skill deficits in terms of initiating peer interactions (Darwish, 2001; Valentino, 2011; Mathews, 2009). A substantial body of literature on interpersonal repercussions of child maltreatment focuses on the protective effects of social support structure, e.g., the number of persons in one's social network or the frequency of interactions with others (Guay, 2006; Kanaisty, 2011; Sperry & Widom, 2013; Folger & Wright, 2013; Nietlisbach & Maercker, 2009; Appleyard, 2010). However, the research has not focused substantially on individuals' *perceptions* of social support, which could shed light on how

maladaptive internalization of caregiver messages and distorted interpretations of social cues affect maltreated children (Guay, 2006; Nietlisbach & Maercker, 2009). Preliminary findings support the notion that perceived social support moderates posttraumatic psychological distress above and beyond the protective effects of structural social support (Evans, 2013).

*Interpersonal sensitivity.* One marker of perceived social support is interpersonal sensitivity, or the accuracy with which one infers cognitions, emotions, and desires of another person. Someone who has high levels of interpersonal sensitivity is prone to negative internalization of social cues, such as interpreting a neutral comment as offensive or inferring judgment from an innocuous glance (Hall, 2006; Rosenthal, 1979). In victims of childhood maltreatment, inability to appropriately interpret social cues has significant ramifications for the development of healthy relationships, maintenance of PTSD symptoms, and risk for revictimization (Tarabulsky, 2008; Nietlisbach & Maercker, 2009; Dietrich, 2007). Given that child maltreatment offenders are often parents, disruptions to the attachment relationship may contribute to maladaptive development of interpersonal sensitivity in victims of childhood maltreatment. The attachment relationship serves as an interpersonal template from which the child will develop other relationships throughout his life (Tarabulsky, 2008). The more adaptive this relationship, the better equipped the child will be to cope with interpersonal distress throughout his lifespan. The more disorganized the attachment style, the more difficulty a child may experience in the regulation of his perceptions and attributions of others' mental states, leading to disruptions in the socialization process.

Pennebaker (1985) proposes that the link between traumatic childhood

experiences and misappraisal of social cues may be due to excessive demand for inhibitory control. According to Fonagy (2007) and Pennebaker (1985), children require inhibitory control for two purposes: 1) to regulate self-presentation by controlling any socially inappropriate impulses in order to facilitate adaptive socialization, and 2) to enhance the accuracy of interpersonal inferences by inhibiting a first-person perspective and activating theory of mind. Victims of childhood maltreatment require inhibitory control for a third purpose: 3) to suppress manifestations of posttraumatic stress, such as memories or emotions related to the trauma. Children who experience trauma, therefore, are additionally taxed for inhibitory resources, which compromises their capacity for adaptive socialization and can increase conflicts and distress in interpersonal relationships (Pennebaker, 1985; Nietlisbach & Maercker, 2009). The more these resources are drained, the more difficulties a child may have with any or all of these tasks. It is therefore reasonable to predict that maladaptive levels of interpersonal sensitivity (purpose 2) impair resilience to posttraumatic stress symptoms (purpose 3) and/or capacity to develop peer relationships (purpose 1) among victims of childhood maltreatment. However, the literature has yet to examine the relationship of interpersonal sensitivity to childhood maltreatment, posttraumatic stress symptomatology, or quality of friendships.

*Subtypes of childhood maltreatment.* The research is also scant regarding differential impairments depending on the type of childhood maltreatment. The literature tends to treat childhood maltreatment as a single construct, but in reality maltreatment is a composite of subtypes with distinct profiles. Abuse and neglect are widely recognized as separate paradigms in legal and clinical arenas but had not been differentiated in

research until recently (Valentino, 2011). Extant studies have noted significant differences in psychological sequelae and socioemotional outcomes between victims of childhood abuse and victims of childhood neglect, but the literature comparing abuse and neglect remains limited (Higgins & McCabe, 2001; Powers, 2009). Even less is understood regarding the subtypes of abuse and neglect (Milot, 2010).

Preliminary studies on maltreatment types have typically operationalized abuse and neglect however the respective agencies providing data had defined them (Zuravin, 1991). Garland et al. (1996) coded Child Welfare records to determine subtypes of maltreatment, noting three distinct patterns of abuse: sexual, physical, and emotional. These findings have been corroborated by other studies of abuse subtypes, although many use the term *psychological abuse* in place of *emotional abuse* with equivalent defining features (Leeb, 2008; Cohen, 2014; Higgins & McCabe, 2001). The DSM-5 echoes these delineations by distinguishing among physical, sexual, and psychological abuse, but considers neglect to be a single, undifferentiated construct encompassing “abandonment; lack of appropriate supervision; failure to attend to necessary emotional or psychological needs; and failure to provide necessary education, medical care, nourishment, shelter, and/or clothing” (American Psychiatric Association, 2013). A recent review by Stoltenborgh et al. (2013) found only 16 articles that considered neglect by subtype, with two predominant subtypes emerging: physical neglect and emotional neglect. The Childhood Trauma Questionnaire, which will be used to assess childhood maltreatment in this study, similarly breaks down maltreatment into the aforementioned subtypes: physical, sexual, and emotional abuse; physical and emotional neglect (Bernstein & Fink, 1998).



*Maltreatment subtypes and psychological sequelae.* Among studies that have differentiated subtypes of abuse and neglect, significant differences in psychological sequelae have been noted. Powers et al. (2009) found that physical abuse and sexual abuse in childhood were related to adult depression, but that those relationships were no longer significant when emotional neglect was taken into account. Emotional neglect served as the strongest predictor of adult depression and suicidal behavior above and beyond the other forms of childhood maltreatment. Cohen et al. (2014) found distinct relationships between types of maltreatment and clusters of personality disorders. Physical abuse is often related to aggressive domination as an interpersonal strategy and has been linked to antisocial personality disorder (Johnson, 2001; Grilo & Masheb, 2002; Lobbestael, 2010; Cohen, 2014). Emotional abuse, which is connected to social anxiety and low self-esteem, appears to predict Cluster C disorders, including avoidant personality disorder, dependent personality disorder, and obsessive-compulsive personality disorder (Cohen, 2014). Emotional neglect shows correlations with Cluster A disorders, such as paranoid, schizoid, and schizotypal personality disorders, which are often characterized by social isolation and avoidance of intimacy (Afifi, 2011; Berenbaum, 2003; Johnson, 2000; Cohen, 2014). The variance of psychopathological outcomes by types of abuse versus types of neglect indicates a need for further study of the repercussions of childhood maltreatment subtypes.

*Maltreatment subtypes and PTSD.* Very few studies have examined differential risks for PTSD by childhood abuse versus childhood neglect. Substantial research exists linking physical and sexual abuse with symptoms of PTSD; however, the potential relationship between neglect and posttraumatic stress has only been minimally

investigated, despite the fact that neglect accounts for the vast majority of reported child maltreatment cases (Milot, 2010). The limited research on neglect and PTSD shows no significant correlation (Cicchetti & Rogosch, 1997; Koenig, 2000). Given the diagnostic debate regarding the consideration of childhood maltreatment as a form of trauma, further clarification is needed in the literature to determine the distinctive relationships between childhood maltreatment subtypes and PTSD symptomatology.

*Maltreatment subtypes and interpersonal functioning.* Recent research has examined interpersonal functioning across subtypes of child maltreatment. Valentino et al. (2011) found that infants from abusing families played less independently and more imitatively than infants from neglecting families or nonmaltreating families. Abused infants were therefore less likely to initiate interactions than other children, demonstrating a potential impediment to goal-directed behavior in victims of abuse (Valentino, 2011). In a study by Powers et al. (2009), emotional abuse and neglect in women were negatively correlated with perceived social support from friends, whereas physical and sexual abuse had no significant impact on perceived support from friendships. Though the literature remains scant, these preliminary findings demonstrate a level of nuance in the interpersonal outcomes of abuse versus neglect that merits further research.

*Childhood maltreatment in college students.* College represents an important milestone for socioemotional development in adolescents. Peer relationships are often at the forefront of the undergraduate experience, and interpersonal difficulties may interfere with adolescent wellbeing (Demir & Urberg, 2004). Furthermore, students with mental health struggles are at twice as high a risk for college dropout as students without mental

health struggles (Hartley, 2010; Kessler, 1995; Porter, 1990). Given that universities are typically capable of providing psychosocial services to students that are inexpensive or free of cost, enhancing the understanding of psychological and socioemotional sequelae of childhood maltreatment in adolescents may elucidate guidelines for PTSD interventions and social skill building programs geared towards undergraduates. However, the influence of childhood maltreatment histories on adolescents transitioning into adulthood has not been well studied (Toth & Cicchetti, 2013).

This study aims to test the following hypotheses regarding childhood maltreatment, interpersonal functioning, and PTSD symptomatology in college students:

- 1) Childhood maltreatment is positively related to interpersonal sensitivity, negatively related to quality of friendships, and positively related to posttraumatic stress symptom severity.
- 2) Interpersonal sensitivity mediates the relationship between childhood maltreatment and quality of friendships.
- 3) Interpersonal sensitivity mediates the relationship between childhood maltreatment and PTSD symptomatology.
- 4) Victims of both abuse and neglect experience the lowest friendship quality when controlling for interpersonal sensitivity and PTSD, followed by victims of neglect only, then victims of abuse only, then non-maltreated individuals.
- 5) Victims of both abuse and neglect experience the most severe posttraumatic stress symptoms when controlling for interpersonal sensitivity and friendship quality, followed by victims of abuse only, then victims of neglect only, then non-maltreated individuals.

## Method

### *Research Design*

The current study consisted of a secondary data analysis performed on a sample of a larger study that assessed physical, emotional, and behavioral health implications of anxiety (Flannery-Schroeder, Robbins, Sieberg, Lamb, 2005) GET REFERENCE. The study design, recruitment methods, and inclusion and exclusion criteria were determined by investigators for the primary data collection. Eligible participants were undergraduate students at the University of Rhode Island (URI) who were at least 18 years of age.

### *Participants*

Participants (N=232) were recruited from an undergraduate general psychology course (PSY 103) at the University of Rhode Island (URI) over the 2006-2007 academic year. They were given extra credit for their participation in the study.

Participants ranged in age from 18-35 years ( $M=19$ ,  $SD=1.51$ ). The sample included 146 women (62.9%) and 84 men (36.2%); 2 participants (0.9%) did not report their gender. The majority of the participants were White (89.7%), 3.4% were Black/African American, 1.8% were Asian, and 2.2% were from other ethnic groups. Seven participants (3.0%) did not report their ethnicity. Nine participants (3.9%) were Hispanic.

Table 1. Demographics

<i>(N=232)</i>	<i>Mean (SD)</i>
<b>Age</b>	19 (1.51)
	<i>N (%)</i>
<b>Gender</b>	
Females	146 (62.9%)
Males	84 (36.2%)
Unreported	2 (0.9%)
<b>Race</b>	
White	208 (89.7%)
Black/African American	8 (3.4%)
Asian	4 (1.8%)
Other	5 (2.2%)
Not Reported	7 (3.0%)
<b>Ethnicity</b>	
Hispanic/Latino	9 (3.9%)
Non-Hispanic/Latino	121 (52.2%)
Unknown/Not Reporting	102 (44.0%)

*Measures*

*Demographics Questionnaire.* Participants first completed a demographics questionnaire. Standard descriptive demographic information was requested from participants, including gender, age, race/ethnicity, and information about income, occupation, and education.

*Childhood Trauma Questionnaire.* The *Childhood Trauma Questionnaire* (CTQ; Bernstein & Fink, 1998) is a 28-item self-report inventory that assesses childhood histories of abuse and neglect among adolescents and adults. Items on the CTQ are rated on a 5-point, Likert-type scale with response options ranging from Never True to Very Often True. The CTQ has been validated across a variety of populations, including for use with adolescents, and has demonstrated high internal consistency (Bernstein, 2003; Baker & Maiorino, 2010). Confirmatory factor analysis confirmed five distinct subscales of the CTQ: physical abuse, emotional abuse, sexual abuse, physical neglect, and

emotional neglect. Physical, emotional, and sexual abuse were analyzed together in the current study to form a composite of childhood abuse, and physical and emotional neglect were analyzed together to form a composite of childhood neglect. The emotional neglect and physical neglect scales have demonstrated high correlations across different populations ( $r=.78-.90$ ), as have the three abuse subtypes ( $r=.41-.87$ ) (Bernstein, 2003). The CTQ exhibited high internal consistency in the current study (Cronbach's alpha = .90).

*Symptom Checklist-90-Revised.* The *Symptom Checklist-90-Revised* (SCL-90-R; Derogatis, 1994) is a 90-item self-report symptom inventory that assesses psychological patterns of nine symptom dimensions: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism (Derogatis, 1994). Items on the SCL-90-R are measured on a five-point Likert-style scale of distress, with response options ranging from Not at All to Extremely. The SCL-90-R has shown high convergent validity across studies (Derogatis, 1976; Derogatis & Cleary, 1977; Wong, 2013). There has been some debate about the validity of the individual dimensions of the SCL-90-R, but a range of studies has demonstrated adequate fit of a 9-factor model (Vassend & Skrondal, 1999; Urban, 2014; Wong, 2013; Derogatis & Cleary, 1977).

The current study utilized the Interpersonal Sensitivity scale of the SCL-90-R, which reflects feelings of personal inadequacy, self-deprecation, and acute self-consciousness. The Interpersonal Sensitivity scale consists of 9-items with Procrustes factor loadings ranging from .30 to .69 (Derogatis & Cleary, 1977). The Interpersonal Sensitivity scale has been correlated with depression, paranoid ideation, and

posttraumatic stress symptomatology (Urban, 2014; Wong, 2013). Cronbach's alpha of .86 demonstrates high internal consistency of the Interpersonal Sensitivity scale in the current study.

*Quality of Life Inventory.* The *Quality of Life Inventory* (QOLI; Frisch, 1992) is a 32-item self-report inventory that assesses quality of life across 16 different domains. Each of the 16 domains is rated first on a 3-point Likert-type scale, with item options of Not Important, Important, or Very Important. Each domain is then rated on a 6-point Likert-type satisfaction scale, with response options ranging from Very Dissatisfied to Very Satisfied. The satisfaction scales are weighted by the respective importance scales and summed for a total Quality of Life score. The QOLI has demonstrated high internal consistency across populations (Lindner, 2013; Frisch 1992).

The current study analyzed the Friendship subscale of the QOLI. This subscale has demonstrated a small to medium independent effect size (partial  $\eta^2=0.04$ ) across populations (Lindner, 2013). Among college-aged participants in the normative sample, the item-total correlation for weighted satisfaction ratings of the Friendship scales was .59 for both a group of undergraduates recruited from the university counseling center ( $n=127$ ) and a general undergraduate sample ( $n=127$ ). The Friendship scale consists of two items: "How important are friends to your happiness?" and "How satisfied are you with your friends? (If you have no friends, say how satisfied you are about having no friends.)". The "Importance" item is scored on a Likert-type scale from 0-2 (Not Important, Important, Extremely Important). The "Satisfaction" item is scored on a Likert-type scale from -3 to 3 (Very Dissatisfied, Somewhat Dissatisfied, A Little Dissatisfied, A Little Satisfied, Somewhat Satisfied, Very Satisfied). The total subscale

score is determined by the interaction of these scores. As the Friendship scale only consists of two items, Cronbach's alpha for the subscale was not computed for the current study, but Cronbach's alpha for the QOLI as a whole was high ( $\alpha=.86$ ). Based on its strong psychometric properties, the QOLI is suitable as a measure of perceived quality of friendship (Frisch, 1992).

*Trauma Symptom Inventory.* The *Trauma Symptom Inventory* (TSI; Briere, 1995) is a 100-item self-report inventory that assesses acute and chronic posttraumatic symptomatology. The TSI has been validated as a measurement for psychological sequelae of childhood abuse and other early traumatic events (Briere, 1995; Briere & Elliott, 2003). Items on the TSI are measured on a 4-point Likert-type scale with response options ranging from Never to Often. Factor analysis has confirmed 10 clinical scales of the TSI: Anxious Arousal, Depression, Anger/Irritability, Intrusive Experiences, Defensive Avoidance, Dissociation, Sexual Concerns, Dysfunctional Sexual Behavior, Impaired Self-Reference, and Tension Reduction Behavior. The TSI has been validated for use with undergraduate students, as a standardization sample of university students ( $n=279$ ) demonstrated an average Cronbach's alpha reliability coefficient of .84. Cronbach's alpha was even higher in the current study ( $\alpha=.97$ ).

### *Procedure*

The original study was approved by the Institutional Review Board (IRB) of the University of Rhode Island. During a class period designated by the course instructor, the researcher distributed packets of self-report questionnaires and the informed consent document. The researcher then described the study and answered questions regarding participation. Students who wished to participate in the study implied their consent to



participate by completing the pack of questionnaires. Signatures on the consent forms were not obtained to ensure anonymity. Students who did not wish to participate in the study were dismissed from the class.

## Results

### *Results for Hypotheses 1, 2, and 3*

Ordinary Least Squares (OLS) Regression analyses were used to determine whether 1) childhood maltreatment is significantly related to interpersonal sensitivity, quality of friendships, and posttraumatic stress symptomatology, 2) interpersonal sensitivity mediates the relationship between childhood maltreatment and quality of friendships, and 3) interpersonal sensitivity mediates the relationship between childhood maltreatment and PTSD. An Ordinary Least Squares (OLS) regression assumes that data are linear, normal, and homoscedastic. Descriptive statistics were conducted in order to assess those assumptions prior to conducting analyses. Several variables revealed non-normal skewness. Maltreatment severity had a skew of 1.58, interpersonal sensitivity had a skew of 1.079, friendship quality had a skew of -1.6, and posttraumatic stress had a skew of 1.03. Kurtosis was appropriate in each of these variables. According to Harlow (2014), OLS regressions are robust to non-normality if the sample size equals or exceeds 40-50 participants per independent variable. The current study's sample size of 232 more than compensates for the slight non-normality seen in these variables. Therefore, OLS regressions were conducted as planned.

The first hypothesis, that childhood maltreatment is significantly related to interpersonal sensitivity, quality of friendships, and posttraumatic stress symptomatology, was supported. Childhood maltreatment severity significantly predicted increased interpersonal sensitivity at the  $\alpha=.05$  level;  $t(1)=4.64, p<0.001$ . This regression elicited a small to medium univariate effect size (standardized  $\beta=0.29$ ), according to Cohen's guidelines (Cohen, 1988; Cohen, 2003). Childhood maltreatment severity also

significantly predicted decreased friendship quality;  $t(1)=-4.21, p<0.001$ ; with a small to medium univariate effect size (standardized  $\beta=-0.27$ ). Lastly, childhood maltreatment severity significantly predicted increased posttraumatic stress symptomatology;  $t(1)=7.76, p<0.001$ ; with a medium to large univariate effect size (standardized  $\beta=0.47$ ).

As the predicted relationships in Hypothesis 1 were fully supported, formal mediational analyses were justified. See Table X for bivariate correlations among the independent variable, mediator variable, and outcome variables for Hypotheses 2 and 3.

Table 2. Bivariate Correlations

	Maltreatment	Interpersonal Sensitivity	Friendship Quality	Posttraumatic Stress
Maltreatment	--	.294**	-.269**	-.468**
Interpersonal Sensitivity	--	--	-.293**	.656**
Friendship Quality	--	--	--	-.248**
Posttraumatic Stress	--	--	--	--

Hypotheses 2 and 3 tested simple mediation models. According to Baron and Kenny (1986), mediation analysis requires three regression equations: 1) the mediator must be regressed on the independent variable, 2) the dependent variable must be regressed on the independent variable, and 3) the dependent variable must be regressed on both the independent variable and the mediator. For mediation to be present, equations 1 and 2 must be significant, as well as the effect of the mediator in equation 3, and the inclusion of the mediator in the regression model must diminish the total effect of the independent variable on the dependent variable (Baron & Kenny, 1986).

The second hypothesis, interpersonal sensitivity mediates the relationship between childhood maltreatment and quality of friendships, was partially supported. As

shown in Hypothesis 1, the total effect of child maltreatment on quality of friendships was significant,  $t(1) = -4.21, p < 0.001$ . The effect of child maltreatment on interpersonal sensitivity was significant ( $t(1) = 4.64, p < 0.001$ ), as was the effect of interpersonal sensitivity on quality of friendships ( $t(1) = -4.61, p < 0.001$ ). The effect of interpersonal sensitivity on quality of friendships in the mediation equation was also significant,  $t(1) = -3.58, p < 0.001$ , thus the first set of requirements set out by Baron and Kenny for mediation was upheld. For full mediation to be present, the direct effect of child maltreatment on friendship quality must no longer be significant when interpersonal sensitivity is controlled; however, in the present study, the effect remained significant,  $t(1) = -3.08, p = 0.002$ . Partial mediation may be present if the moderator variable reduces the effect of the independent variable on the dependent variable (Baron & Kenny, 1986; Zhao, 2010). The mediated relationship between child maltreatment and friendship quality had an effect size of  $\beta = -0.20$ , whereas the total effect size of child maltreatment on friendship quality was  $\beta = -0.27$ . The addition of the mediator thus accounted for  $\beta = .07$ , which represents a fairly small univariate effect size. The indirect effect of interpersonal sensitivity can be tested using the Aroian Test, which is a more sensitive modification of the Sobel Test (Preacher and Hayes, 2004). For the mediation model, the Aroian statistic was 3.22, with a standard error of 0.0046,  $p < 0.001$ . Therefore, interpersonal sensitivity partially mediated the relationship between child maltreatment and quality of friendships. See Appendix E for path model diagrams of Hypothesis 2.

The third hypothesis, interpersonal sensitivity mediates the relationship between childhood maltreatment and posttraumatic stress symptomatology, was also partially supported. The total effect of child maltreatment on posttraumatic stress was significant,

$t(1)=7.76, p<0.001$ . The effect of child maltreatment on interpersonal sensitivity was significant ( $t(1)=4.64, p<0.001$ ), as was the effect of interpersonal sensitivity on posttraumatic stress,  $t(1)=12.64, p<0.001$ . The effect of interpersonal sensitivity on posttraumatic stress retained significance in the mediation model,  $t(1)=11.28, p<0.001$ . As in hypothesis 2, however, the direct effect of child maltreatment on posttraumatic stress remained significant when controlling for interpersonal sensitivity,  $t(1)=6.03, p<0.001$ , therefore, full mediation was not present. However, the total effect of child maltreatment on posttraumatic stress was  $\beta=0.47$ , and the direct effect of maltreatment in the mediation model was  $\beta=0.30$ . Therefore, the difference in effect size when controlling for interpersonal sensitivity was small to medium,  $\beta=0.17$ . The Aroian statistic for the mediation effect was 6.60 with a standard error of 0.96,  $p<0.001$ . Therefore, interpersonal sensitivity partially mediated the relationship between childhood maltreatment and posttraumatic stress. See Appendix F for path model diagrams of Hypothesis 3.

#### *Results for Hypotheses 4 and 5*

Hypotheses 4 and 5 tested for differences in friendship quality and posttraumatic stress among study groups. The study groups were comprised of individuals with a history of childhood abuse, individuals with a history of childhood neglect, individuals with a history of both childhood abuse and childhood neglect, and non-maltreated individuals. Groups were tested for differences in age and gender. While age differences were non-significant, gender did differ significantly by group ( $\chi^2(3)=9.17, p=.027$ ). Gender was not significantly related to either outcome variable, (i.e., friendship quality or posttraumatic stress) nor the mediating variable interpersonal sensitivity; therefore, gender was not covaried in the model. Groups were also tested for differences in

interpersonal sensitivity. Interpersonal sensitivity significantly differed depending on study group,  $F(3,21)=6.174$ ,  $p<0.001$ , and was therefore included as a covariate. Post-hoc Tukey tests demonstrated significant differences specifically between the non-maltreated group and the doubly maltreated group,  $p<0.001$ .

The MANCOVA revealed a significant main effect of study group on friendship quality and posttraumatic stress when covarying interpersonal sensitivity, Wilks' Lambda=0.84,  $F(6,406)=6.25$ ,  $p<0.001$ . Follow-up ANCOVAs confirmed that, individually, friendship quality differed by study group ( $F(3,200)=3.85$ ,  $p=0.01$ ), with a small to medium effect size (partial  $\eta^2=0.054$ ), and posttraumatic stress differed by study group ( $F(3,200)=9.18$ ,  $p<0.001$ ), with a medium to large effect size (partial  $\eta^2=0.12$ ). Analyses pertaining to Hypotheses 4 and 5 further explain where the differences between groups emerged.

Hypothesis 4, which specified that victims of both abuse and neglect experience the lowest friendship quality, followed by victims of neglect only, then abuse only, then non-maltreated individuals when controlling for interpersonal sensitivity and posttraumatic stress, was not supported. Friendship quality did not differ significantly among victims of abuse, victims of neglect, or victims of both abuse and neglect (abuse only:  $M=3.50$ ,  $SD=3.50$ ; neglect only:  $M=3.85$ ,  $SD=2.73$ ; abuse and neglect:  $M=2.82$ ,  $SD=3.07$ ) when accounting for interpersonal sensitivity and posttraumatic stress. Quality of friendship did differ significantly between victims of both abuse and neglect and non-maltreated individuals ( $F(1,181)=8.89$ ,  $p=0.003$ ; non-maltreated:  $M=4.60$ ,  $SD=1.92$ ), even with a conservative Bonferroni's correction of  $\alpha=0.0083$ . This difference in friendship quality exhibited a small to medium effect size (partial  $\eta^2=0.047$ ). Therefore,

when covarying for interpersonal sensitivity and posttraumatic stress, victims of both abuse and neglect suffered lower friendship quality than non-maltreated individuals, but no other significant differences emerged in group comparisons of victims of abuse and neglect, victims of abuse only, victims of neglect only, and non-maltreated individuals.

Hypothesis 5, which specified that victims of both abuse and neglect experience the most severe posttraumatic stress, followed by victims of abuse only, then victims of neglect only, then non-maltreated individuals when controlling for interpersonal sensitivity and friendship quality, was partially supported. Victims of both abuse and neglect did not exhibit significantly higher symptoms of posttraumatic stress than victims of abuse only. They did exhibit higher symptoms of posttraumatic stress than victims of neglect only ( $F(1,43)=5.03, p=0.03$ ; abuse and neglect:  $M=90.47$ , neglect only:  $M=48.38$ ,  $SD=32.53$ ), but the difference was no longer significant when considering a Bonferroni correction of  $\alpha=0.0083$ . Victims of both abuse and neglect demonstrated significantly higher posttraumatic stress than non-maltreated individuals ( $F(1,181)=16.54, p<0.001$ ;  $SD=43.02$ ; non-maltreated:  $M=49.13$ ,  $SD=33.91$ ), even with a Bonferroni correction, with a small to medium effect size (partial  $\eta^2=0.084$ ). Victims of abuse only experienced more posttraumatic stress than victims of neglect only, but the significance disappears when applying a Bonferroni correction ( $F(1,19)=5.27, p=0.033$ ; abuse only:  $M=80.70$ ,  $SD=43.50$ ). Victims of abuse only also demonstrated significantly higher posttraumatic stress than non-maltreated individuals ( $F(1,157)=11.07, p=0.001$ ), even with a Bonferroni correction, with a small to medium effect size (partial  $\eta^2=0.067$ ). There was no significant difference in posttraumatic stress between victims of neglect only and non-maltreated individuals.

Table 3. Results of MANCOVA Analyses

	<u>Group</u>							
	Non-maltreated (n=162)		Abuse Only (n=12)		Neglect Only (n=14)		Abuse and Neglect (n=37)	
	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>
Quality of Friendship	4.60	1.92	3.50	3.50	3.85	2.73	2.82	3.07
Posttraumatic Stress	49.13	33.91	80.70	43.50	48.38	32.53	90.47	43.02

Therefore, as predicted, victims of both abuse and neglect experienced the greatest amount of posttraumatic stress, but they did not experience significantly more posttraumatic stress than victims of abuse only or neglect only. Victims of abuse only trended towards greater posttraumatic stress than both victims of neglect only and non-maltreated individuals, but the difference did not reach significance when  $\alpha$  was adjusted for the number of post-hoc comparisons made. Lastly, while non-maltreated individuals demonstrated lower levels of posttraumatic stress than victims of abuse and doubly maltreated individuals, they did not demonstrate significantly lower levels of posttraumatic stress than victims of neglect only. Therefore, hypothesis 5 was only partially supported.



## Discussion

The present study examined interpersonal sensitivity, quality of friendship, and symptoms of posttraumatic stress among individuals with and without a history of childhood maltreatment to assess whether interpersonal sensitivity mediated the relationship between childhood maltreatment and both posttraumatic stress and interpersonal functioning. Furthermore, this study investigated whether subtypes of childhood maltreatment were differentially associated with posttraumatic stress and interpersonal functioning by comparing individuals with a history of childhood abuse, childhood neglect, both childhood abuse and neglect, and no maltreatment history.

### *Childhood maltreatment as a predictor of friendship quality*

The connection between childhood maltreatment and adverse interpersonal outcomes is well documented in the literature, but minimal attention to date has been given specifically to perceived quality of friendship (Dietrich, 2007; Tarabulsky, 2008; Nietlisbach & Maercker, 2009; Valentino, 2011; Sperry & Widom, 2013; Alink, 2012; Darwish, 2001; Bruce, 2010; Mathews, 2009). Assessing perception of interpersonal functioning and social support is important to understand the individual experience of friendship, which may or may not be congruent with apparent evidence of social functioning. For example, an individual with an abundance of friends may not feel connected to any of them, whereas an individual with only a small social support network may experience deeper and more meaningful relationships. Likewise, an individual with appropriate social skills may appear to function well in interpersonal contexts, but his/her internal experience of friendship may reflect impairments in relating that are unobservable.

The present study found that severity of childhood maltreatment did predict decreased ratings of friendship quality, which is consistent with the growing body of evidence suggesting that a history of childhood maltreatment is predictive of poorer perceived social support (Guay, 2006; Powers, 2009; Folger & Wright, 2013; Evans, 2013). Analyses further assessed whether impairments to social inference as a result of childhood maltreatment explained the path from maltreatment to lower quality friendship. Results showed that interpersonal sensitivity partially mediated the relationship, but the effect size of the mediation was minimal, whereas the effect size of the unmediated relationship was small to medium. These findings indicate that child maltreatment is predictive of increased interpersonal sensitivity, which in turn may predict decreased quality of friendship; however, the small effect size limits generalization beyond the study sample. Findings additionally indicate that child maltreatment independently predicts decreased friendship quality above and beyond the small mediating effect of interpersonal sensitivity.

Although interpersonal sensitivity appears to explain some of the relationship between increased maltreatment severity and decreased friendship quality, there are likely other explanatory variables that play a more consequential role in this association. Interpersonal sensitivity and friendship quality were both assessed in the present, whereas childhood maltreatment occurred in the past. The present study did not account for variables that may have altered the individual's wellbeing between the time of maltreatment and the present, such as resilience, availability of alternative social support, or help-seeking behavior post-maltreatment. Given that the current sample was comprised entirely of college students, the results of this study are limited to a relatively

high-functioning population, who may have been richer in protective factors than those who did not attend college. Therefore, the role of interpersonal sensitivity in the connection between maltreatment severity and quality of friendships may not be as impactful in the current sample compared to the broader population. Further research is needed to understand the role of interpersonal sensitivity in samples that are more representative of the general population.

#### *Childhood maltreatment as a predictor of posttraumatic stress*

Consistent with extant literature, the results of the current study demonstrated that severity of childhood maltreatment predicted increased symptoms of posttraumatic stress symptomatology (Jonkman, 2013; Milot, 2010; De Bellis, 2009; Folger & Wright, 2013; Afifi, 2012; Higgins & McCabe, 2001; Darwish, 2001; Shaffer, 2009; Wright, 2009; Powers, 2009; Cohen, 2014). This finding contributes to the argument that childhood maltreatment should be considered a form of trauma for diagnostic reasons, as it has been associated with a symptom profile consistent with posttraumatic stress disorder.

The present study further showed that interpersonal sensitivity partially mediated the relationship between childhood maltreatment and posttraumatic stress with a small to medium effect size. Therefore, those with a history of childhood maltreatment who developed higher interpersonal sensitivity demonstrated even greater risk for developing PTSD than those who were less interpersonally sensitive. This finding demonstrates the importance of targeting interpersonal sensitivity in therapeutic intervention for individuals with a history of childhood maltreatment. Extant literature suggests that interpersonal sensitivity is related to impairments to relationship development,

maintenance of posttraumatic stress, and risk for revictimization (Tarabulsy, 2008; Neitlisbach & Maercker, 2009; Dietrich, 2007). The current study provides further support that development of social inference skills may decrease the risk for these adverse outcomes. Given that the study sample was comprised entirely of college students, who generally have access to mental health care through university counseling centers, a future direction for the field may include a pilot of an intervention for students affected by maltreatment that focuses on reducing interpersonal sensitivity.

#### *Quality of friendships and posttraumatic stress across maltreatment subtypes*

Results of the present study did not support the hypothesized differences in friendship quality and posttraumatic stress between those with a history of abuse versus those with a history of neglect and compared to doubly- and non-maltreated individuals. Findings from the current study suggest that neither maltreatment type served as a differential risk factor for lower friendship quality, even when compared to a non-maltreated sample. With regard to posttraumatic stress, individuals with a history of abuse did not exhibit higher levels of posttraumatic stress than individuals with a history of neglect. Individuals with a history of childhood abuse trended towards greater levels of posttraumatic stress than those with no maltreatment history, as did individuals with histories of both childhood abuse and neglect compared to victims of neglect only. However, the significance of these relationships disappeared when corrected for the number of post-hoc comparisons made. It is important to note, however, that the chosen correction method, the Bonferroni correction, is known to be overly conservative; therefore the significance may have remained if a more liberal method of correction had

been used. Previous research has noted an association between childhood abuse and posttraumatic stress (Dietrich, 2007; Moore, 2013; Milot, 2010), but only minimal support has been found for an association between neglect and posttraumatic stress (Milot, 2010).

Findings from the current study indicated that those with a history of both childhood abuse and childhood neglect had more posttraumatic stress and lower-quality friendships than those unaffected by childhood maltreatment. These results are consistent with previous research demonstrating that increased exposure to maltreatment leads to more severe intrapersonal and interpersonal deficits (Folger & Wright, 2013; Higgins & McCabe, 2001; Alink, 2012). The findings of the current study improve upon the existing research on maltreatment outcomes by expanding the list of interpersonal deficits associated with increasing maltreatment exposure to include perceived friendship quality. These findings also contribute to the growing understanding of the association between childhood maltreatment and posttraumatic stress.

These findings highlight the need for early identification of families affected by childhood maltreatment. Adverse psychosocial outcomes were significantly more apparent in the doubly maltreated group than in either of the single-maltreatment groups, suggesting that revictimization compounds the negative effects of initial victimization. Where full prevention of maltreatment is not possible, intervention after the first occurrence of abuse or neglect may assist to minimize repercussions associated with maltreatment and increase the chances for the child to lead a relatively unaffected life.

### *Limitations*

The current study may be limited by some methodological variables that should be acknowledged. First, the measurement used to assess quality of friendship, the Friendship scale of the Quality of Life Inventory (QOLI; Frisch, 1992), only consists of two items. One item assesses the importance of friendship to the individual (rated as 0, 1, or 2), and the second assesses the individual's satisfaction with current friendships (rated as -3, -2, -1, 1, 2, or 3). These items are then multiplied to represent a rating of friendship satisfaction that is weighted by the importance of friendship. Due to the structure of the assessment, the scale only allows for 11 discrete responses to the scale. Because of the restricted range of possible responses, it is questionable whether quality of friendship can be truly considered a continuous variable in the current study. Results of the current study therefore may not be representative of true variance in quality of friendship among participants.

Second, childhood maltreatment was assessed by retrospective self-report using the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998). Although this questionnaire has been validated for use across a range of populations and has demonstrated high internal consistency in past studies, as well as the current study, it is possible that participant recollections of their childhood are not accurate. The CTQ is the only assessment used in the present study that asked for retrospective data, and it is possible that the nature of the assessments included in the questionnaire packet primed participants to remember their childhood in a certain light. Data regarding childhood maltreatment history may have been more reliable had the CTQ been administered before any of the other questionnaires, so as to reduce the likelihood that participants would be

primed by study material. Data may also have been more reliable had it been possible to assess participants during childhood about their maltreatment experiences and to follow-up with outcome measures when participants reached adulthood.

Third, the generalizability of the study is limited by the homogeneity of the sample. All participants in the study were undergraduate students at a prestigious university, which suggests that this is a generally intelligent and high-functioning sample. Furthermore, the majority of participants identified as White, upper-middle class, and female, which further prohibits generalization of these findings to the broader population.

Lastly, the current study suffers from unequal group sizes. While the total sample (N=232) is sufficiently large for the analyses utilized, the individual groups assessed in Hypotheses 4 and 5 varied significantly in size, with both the abused only and neglected only subgroups consisting of fewer than 20 people each. Therefore, the findings from Hypotheses 4 and 5 regarding these groups may not be psychometrically robust.

#### *Future Directions*

Future research in this area should seek to clarify these findings with a more diverse sample. The present study is limited to a predominantly female, White, upper-middle class sample from a well-regarded northeastern university. To generalize findings, future research should strive to be more representative of the population in terms of gender, ethnicity, socioeconomic status, and education level.

Additionally, the field would benefit from a more comprehensive understanding of the intricacies of the relationship between child maltreatment and various social support structures. Future research may want to assess a range of social support measures, both structural and perceived, in samples of individuals with maltreatment

history to determine whether different components of social support differentially impact psychosocial outcomes, and if so, to what extent.

Future research should also strive to assess other factors not accounted for in the current study that may impact psychosocial outcomes of childhood maltreatment.

Including a measure of attachment could help assess the extent to which interpersonal outcomes of child maltreatment are specifically affected by the parent-child relationship. Consideration of protective factors would contribute to the understanding of best clinical practice for victims of child maltreatment, such as resilience, coping skills, self-efficacy, and presence of alternative attachment figures.

Finally, future research should continue to differentiate between abuse and neglect when considering the psychosocial outcomes of childhood maltreatment. When conducting such research, it is important to clarify how one operationally defines abuse versus neglect given the lack of agreement in the field on what constitutes each maltreatment type. Future researchers should strive to come to a consensus on the definitions of abuse and neglect for the sake of more coherent and valid research findings.



## Appendix A. Additional information on the Childhood Trauma Questionnaire (CTQ).

Bernstein, Ahluvalia, Pogge, and Handelsman (1997) conducted a principal components analysis of the original, long-form version of the CTQ that yielded the five factors that make up the subscales Physical Abuse, Emotional Abuse, Sexual Abuse, Physical Neglect, and Emotional Neglect. Bernstein & Fink defined physical abuse as, “bodily assaults on a child by an adult or older person that posed a risk of or resulted in injury.” Emotional abuse was defined as, “verbal assaults on a child’s sense of worth or well-being or any humiliating or demeaning behavior directed toward a child by an adult or older person.” Sexual abuse was defined as, “sexual contact or conduct between a child younger than 18 years of age and an adult or older person.” Physical neglect was defined as, “the failure of caretakers to provide for a child’s basic physical needs, including food, shelter, clothing, safety, and health care.” Emotional neglect was defined as, “the failure of caretakers to meet children’s basic emotional and psychological needs, including love, belonging, nurturance, and support” (Bernstein & Fink 1998).

Bernstein et al. (2003) tested the 28-item short-form CTQ on four populations: adolescent psychiatric inpatients, adult substance users from New York City, adult substance users from Texas, and adults from a normative community sample in Los Angeles. The physical abuse scale elicited Cronbach’s alphas of .86, .81, .85, and .83 from the adolescents, New York substance abusers, Texas substance abusers, and community sample respectively. The emotional abuse scale elicited Cronbach’s alphas of .89, .84, .88, and .87 among these populations respectively. The sexual abuse scale elicited respective Cronbach’s alphas of .95, .93, .94, and .92. For the neglect scales, emotional neglect yielded Cronbach’s alphas of .89, .88, .85, and .91, and physical neglect

yielded Cronbach's alphas of .78, .68, .68, and .61 respectively across the adolescent psychiatric inpatient population, the adult substance users from New York City, the adult substance users from Texas, and the community sample from Los Angeles (Bernstein 2003). Therefore the short-form CTQ has demonstrated adequate internal consistency across several samples.

The CTQ begins with the statement, "When I was growing up..." and is followed by the 28 items accompanied by five-point Likert-type scales depicting level of agreement. The physical abuse scale includes such items as, "I got hit so hard by someone in my family that I had to go see a doctor or go to the hospital." The emotional abuse scale includes such items as, "People in my family said hurtful or insulting things to me." The sexual abuse scale includes such items as, "Someone tried to make me do sexual things or watch sexual things." The physical neglect scale includes such items as, "I didn't have enough to eat." The emotional neglect scale includes such items as, "My family was a source of strength and support" (to be reverse-scored).

## Appendix B. Additional Information on the Symptom Checklist-90-Revised.

The Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994) is a 90-item self-report inventory assessing psychopathology along the following nine dimensions: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. The 9-item Interpersonal Sensitivity scale will be analyzed in the current study.

Derogatis and Cleary (1977) used a Procrustes procedure to compare the hypothesized structure of the SCL-90-R with empirically developed dimensions. The Interpersonal Sensitivity subscale showed a strong hypothetical-empirical match, although one item did demonstrate some overlap with the Paranoid Ideation scale. The Interpersonal Sensitivity scale has also demonstrated good invariance qualities across groups. Sample items from the Interpersonal Sensitivity scale include, “Feeling uneasy when people are watching or talking about you,” and, “Feeling very self-conscious with others” (Derogatis & Cleary, 1977).

## Appendix C. Additional Information on the Quality of Life Inventory (QOLI)

The Quality of Life Inventory (QOLI; Frisch, 1992) is a 32-item self-report based on an additive model of life satisfaction. Normative data for the QOLI was collected from 6 different samples, 4 with adult participants and 2 with college-age participants. The college-age samples included a general undergraduate sample ( $n=272$ ) and a sample of undergraduates recruited from the university counseling center ( $n=127$ ). The general undergraduate sample was asked to complete seven other measures of subjective wellbeing and life satisfaction. Within this sample, the QOLI elicited validity coefficients of .22-.60 with these other measures, demonstrating significant convergent validity. Test-retest reliability in the two undergraduate samples was high (ranging from .77 to .83), which supports the use of the QOLI with undergraduates. The Friendship Satisfaction rating will be analyzed in the current study. Among college-aged participants, the item-total correlation for weighted satisfaction ratings of the Friendship scales was .59 for both the counseling group and the general undergraduate group. Based on its strong psychometric properties, the QOLI is suitable as a measure of perceived quality of life (Frisch, 1992).

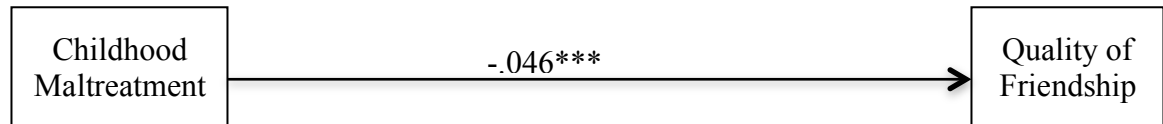
#### Appendix D. Additional Information on the Trauma Symptom Inventory (TSI).

The 10 subscales of the Trauma Symptom Inventory (TSI; Briere, 1995) are as follows: Anxious Arousal (AA), Depression (D), Anger/Irritability (AI), Intrusive Experiences (IE), Defensive Avoidance (DA), Dissociation (DIS), Sexual Concerns (SC), Dysfunctional Sexual Behavior (DSB), Impaired Self-Reference (ISR), and Tension Reduction Behavior (TRB). The TSI has been validated for use with undergraduate students, as a standardization sample of university students ( $n=279$ ) demonstrated an average Cronbach's alpha reliability coefficient of .84. Cronbach's alphas for each subscale were computed from a clinical standardization sample ( $n=370$ ): Anxious Arousal = .87, Depression = .90, Anger/Irritability = .89, Intrusive Experiences = .90, Defensive Avoidance = .88, Dissociation = .88, Sexual Concerns = .89, Dysfunctional Sexual Behavior = .89, Impaired Self-Reference = .87, and Tension Reduction Behavior = .74. These high alpha coefficients indicate strong internal consistency of the TSI (Briere, 1995).

Experiences of different symptom categories tended to differ depending on the participants' histories of traumatic events. Childhood sexual abuse was associated with all 10 scales of the TSI. Childhood physical abuse was associated with all TSI scales except for the two regarding sexual difficulties. Adult sexual assault was also significantly related to 8 subscales, all except for Depression and Intrusive Experiences. Adult nonsexual traumas were less related to TSI than the childhood traumas and adult sexual trauma (Briere, 1995). This study provides evidence that childhood experiences of physical and sexual abuse are related to posttraumatic stress symptomatology, and that symptom profiles may differ dependent on the specific type of trauma experienced.

Appendix E. Path model diagrams for Hypothesis 2.

Figure 1. Total effect of childhood maltreatment on quality of friendship



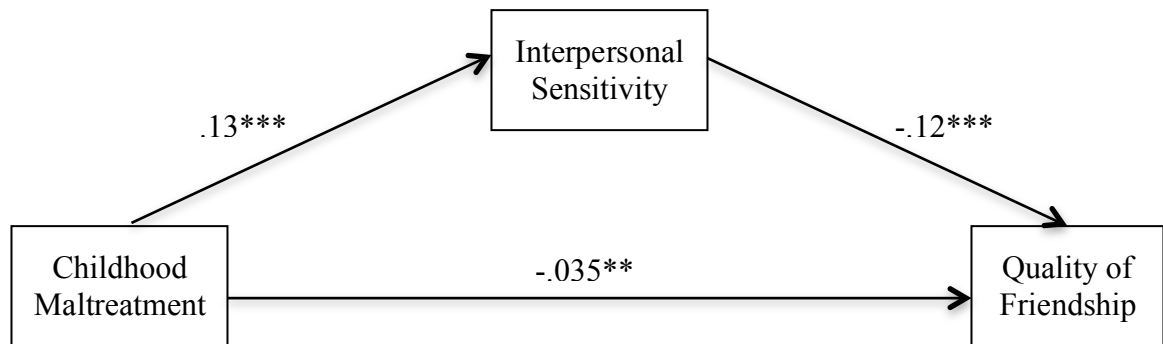
*Coefficients reflect unstandardized parameter estimates.*

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < 0.001$

Figure 2. Partial mediational model predicting the impact of childhood maltreatment on quality of friendship via interpersonal sensitivity



*Coefficients reflect unstandardized parameter estimates.*

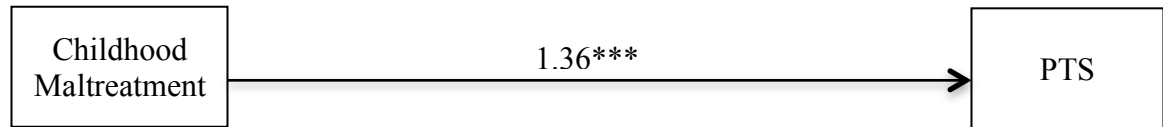
\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < 0.001$

Appendix F. Path model diagrams for Hypothesis 3.

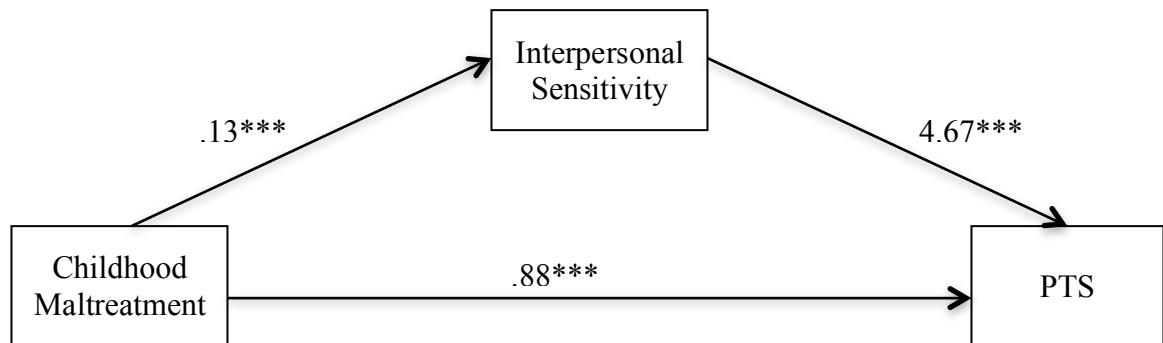
Figure 3. Total effect of childhood maltreatment on posttraumatic stress



*Coefficients reflect unstandardized parameter estimates.*

- \*  $p < .05$
- \*\*  $p < .01$
- \*\*\*  $p < 0.001$

Figure 4. Partial mediational model predicting the impact of childhood maltreatment on posttraumatic stress symptomatology via interpersonal sensitivity



*Coefficients reflect unstandardized parameter estimates.*

- \*  $p < .05$
- \*\*  $p < .01$
- \*\*\*  $p < 0.001$

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