Trauma, Dissociation, and Traumatic Stress at a Trauma Center Serving Low-Income Children and Adolescents

Krista Kohl
Loyola University Chicago

Recommended Citation
http://ecommons.luc.edu/luc_diss/91

This Dissertation is brought to you for free and open access by the Theses and Dissertations at Loyola eCommons. It has been accepted for inclusion in Dissertations by an authorized administrator of Loyola eCommons. For more information, please contact ecommons@luc.edu.

This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 License.
Copyright © 2010 Krista Kohl
LOYOLA UNIVERSITY CHICAGO

TRAUMA, DISSOCIATION, AND TRAUMATIC STRESS
AT A TRAUMA CENTER SERVING LOW-INCOME CHILDREN AND ADOLESCENTS

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

PROGRAM IN CLINICAL PSYCHOLOGY

BY
KRISTA L. KOHL
CHICAGO, ILLINOIS
DECEMBER 2010
ACKNOWLEDGEMENTS

I would like to sincerely thank my committee members and particularly my chair, Maryse Richards, who provided consistent support and encouragement throughout this process. I would also like to thank La Rabida Children’s Hospital-Chicago Child Trauma Center and especially Renee Dominguez and Vikki Rompala without whom this dissertation would not have been possible. I would also like to thank Loyola University Chicago and the Clinical Psychology program faculty and staff for the graduate training I received that prepared me to be a clinical researcher. Lastly, I would like to thank my family and friends for providing me with the unconditional love and support.
TABLE OF CONTENTS

ACKNOWLEDGEMENTS iii

LIST OF TABLES vi

LIST OF FIGURES vii

ABSTRACT viii

CHAPTER ONE: INTRODUCTION 1
  Trauma Types 4
    Maltreatment 4
    Exposure to Community Violence 17
    Other Types of Trauma 19
    Severity of Trauma 21
    Frequency of Trauma 22
    Complex Trauma 26
  Dissociation 31
    History and Current Diagnostic Systems 31
    Dimensional vs. Categorical Models: A Debate 36
    The Link Between Trauma and Dissociation 38
    The Relationship Between Dissociation and Posttraumatic Stress 47
    Assessment of Dissociation 59
    Adolescence 64
    Research Questions 66
    Hypotheses 67

CHAPTER TWO: METHODS 69
  Participants 69
  Procedure 70
  Measures 71
    Measures Assessing Traumatic Event Exposure 72
    Measures Assessing Dissociation 72
    Measures Assessing Posttraumatic Stress 74
    Measures Assessing Other Outcomes 76
  Data Analytic Strategy 79
    Defining Variables 79
    Descriptive Statistics 80
    Regression Analyses 80

CHAPTER THREE: RESULTS 82
  Analytic Strategy 82
    Preliminary Analyses 82
    Composite Variables 88
Independent Variable Composites 88
Mediator and Dependent Variable Composites 94
Correlational Analyses 99
Mediation Analyses 104
Trauma Type and PTS 105
Trauma Type and Internalizing Symptoms 108
Trauma Type and Externalizing Symptoms, ADHD and CD 109
Chronicity and PTS, Internalizing and Externalizing Symptoms, ADHD and CD 110
Poly-Exposure and PTS 111
Poly-Exposure and Internalizing Symptoms 112
Poly-Exposure and Externalizing Symptoms, ADHD and CD 113
Severity and PTS 114
Severity and Internalizing and Externalizing Symptoms, ADHD and CD 115
Moderators 116
Age 117
Gender 129
Adverse Experiences: Initial Method 138
Adverse Experiences: Tests of Simple Mediation 140

CHAPTER FOUR: DISCUSSION 154
Dissociation as a Mediator 156
The Effect of Moderators on Dissociation as a Mediator 156
Age 156
Gender 157
Adverse Experiences 157
Trauma Type 157
Chronicity 164
Poly-Exposure 168
Severity 174
Adverse Experiences 177
Strengths and Limitations 179
Future Directions and Clinical Implications 181

REFERENCES 183

VITA 196
LIST OF TABLES

Table 1: Domains of Impairment in Children Exposed to Complex Trauma 29
Table 2: Measures 71
Table 3: Descriptive Statistics 83
Table 4: Correlations Among Original Independent Variable Trauma Types 85
Table 5: Correlations Among Original Mediator and Dependent Variables 87
Table 6: Internal Reliability for Independent Variable Trauma Type Composites 92
Table 7: Reliability for Mediator and Dependent Variable Composites 94
Table 8: Preliminary Correlations Among All Variables 100
Table 9: Correlations Among All Variables 102
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Significant Mediation Analyses for the Whole Sample</td>
<td>107</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Significant Mediation Analyses for Age – Adolescent</td>
<td>122</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Significant Mediation Analyses for Gender – Females</td>
<td>132</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Significant Mediated Paths for Adverse Experiences – High</td>
<td>143</td>
</tr>
</tbody>
</table>
ABSTRACT

Exposure to trauma continues to be a pervasive and detrimental experience in the lives of children and adolescents in impoverished, urban communities. This study explored the relationships among trauma, dissociation, and posttraumatic stress in a clinic-referred sample of children and adolescents living in urban poverty. Trauma was investigated broadly, including a range of traumatic experiences, with particular attention given to different types, chronicity, multiple exposures, and severity of trauma. Dissociation was investigated as a mediator, or mechanism of the relationships among trauma and posttraumatic stress symptoms, internalizing and externalizing behaviors. Moderators included gender, age, and adverse experiences. Results confirmed that dissociation significantly mediated the relations among three aspects of trauma (Community Violence Type, Poly-Exposure, and Severity) and posttraumatic stress, and among two aspects of trauma (Community Violence Type and Poly-Exposure) and internalizing symptoms. In the context of high levels of Adverse Experiences, dissociation mediated the relation between three aspects of trauma (Community Violence Type, Poly-Exposure, and Severity) and posttraumatic stress and, among adolescents, dissociation mediated the relation between Maltreatment Type and posttraumatic stress. The current study was one of very few to investigate dissociation as a core determinant in the relation between trauma exposure and negative outcomes in a clinic-referred sample. Additionally, this study undertook the issue of how to conceptualize trauma exposure as a
research variable to fully capture the nuances of such a complex and multi-faceted construct.
CHAPTER ONE
INTRODUCTION

Children's talent to endure stems from their ignorance of alternatives.
—Maya Angelou, *I Know Why the Caged Bird Sings*, 1969

Trauma is one of the single most significant difficulties a child can face. Yet, across the world, trauma exposure is increasingly becoming one of the most common burdens a child will have to endure. The consequences of trauma exposure in childhood and adolescence, while wide-ranging, are often grave and ongoing. Despite this, in the field of children’s mental health, trauma has until recently received relatively little attention. Confusion about how to categorize different types of trauma and variations in severity, frequency, and complexity has led to the development of small, divergent research literatures whose findings remain separated by specificity. Some traumas, such as child physical abuse, have long been understood as causes of negative consequences for children, while others, such as witnessing community violence, are newly recognized as having detrimental effects on a child’s development. While findings from specific samples are beneficial for their respective populations, the problem with different research literatures becomes a lack of consensus across studies that investigate trauma and trauma related sequelae in childhood.

As in adult and childhood psychopathology where comorbid cases are typically the rule rather than the exception in actual clinical practice, research often misrepresents
reality by neatly categorizing subjects by single disorder and excluding all others. In much the same way, cases of multiple types of traumas, both chronic and acute, and trauma complicated by disintegration of the attachment relationship, are the norm more often than not in children referred to clinicians, despite research that includes only specific trauma types, severity and frequency. A disconnect exists between research findings that are useful and effective for specific samples, and real-world clinical settings, such as community mental health, where the applicability and efficacy of such findings is questionable. Particularly in low-income, urban communities where resources for adequate child development are scarce and ethnic and racial minority groups are overrepresented, trauma is often not specific, but complex. Through studies that include multiple types of trauma and complex trauma, phenomena can begin to emerge that are consistent across types of trauma that may be at the core of the trauma response in childhood and whose importance may otherwise be diminished.

One of those phenomena is dissociation, which may be a symptom of trauma, a predictor of other outcomes, and/or a means of coping that becomes a part of the child’s way of managing the world and ultimately maladaptive. Dissociation is an experience that, in its benevolent form, is universal in all children, but in those exposed to a variety of types of trauma it can become pathological. The link between trauma and dissociation is robust; nevertheless research has yet to clarify what role dissociation plays in trauma. Misunderstanding and underestimating the significance of dissociation could lead to misdiagnosis and improper treatment. This is particularly dangerous in populations where trauma exposure is frequent, and trauma symptoms may be more likely to be
misinterpreted as symptoms of some other disorder, such as ADHD, because the child’s trauma history is typical relative to the community.

With children’s exposure to trauma so widespread, and an established link between trauma and PTSD, researchers have questioned the difference between those children who develop PTSD and those who do not. An important and understudied component of that question is to better understand the link between trauma and negative outcomes and specifically, what mechanism underlies the relationship between trauma exposure and PTSD. Elucidation of the role of dissociation as a mediator in the relationship between childhood trauma and negative outcomes would inform both further research and clinical conceptualization, assessment, diagnosis, and treatment of trauma related symptoms in children.

The purpose of the present study is to address these research questions through the interaction of the science of empirical data analysis and the practice of community based mental health, with the goal of contributing applicable findings to both. Specifically, this study seeks to explore the relationship between trauma, dissociation, and posttraumatic stress in a clinic-referred sample of children and adolescents living in urban poverty. Trauma will be investigated broadly, including a range of traumatic experiences, with particular attention given to different types, frequency, complexity, and severity of trauma. Dissociation will be investigated as a mediator, or mechanism of the relationship between trauma and posttraumatic stress symptoms. Internalizing and externalizing behaviors will also be investigated as outcomes. Moderators will include gender, age, and adverse experiences.
Trauma Types

Maltreatment

Of all the trauma types, maltreatment has received the most attention across disciplines over the longest period of time and is often considered the leading source of childhood trauma (Behl, Conyngham, & May, 2003; Cicchetti & Toth, 2005; Putnam, 1997). The meaning of maltreatment, while somewhat varied in psychological research, is precise according to federal law. The Keeping Children and Families Safe Act of 2003 is an amendment of the Federally legislated Child Abuse Prevention and Treatment Act (CAPTA) which mandates a minimum set of acts or behaviors that defines child maltreatment. In accordance with federal law, the definition of child abuse and neglect includes “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” (DHHS, 2003). As indicated by the Department of Health and Human Services (DHHS) Administration on Children, Youth, and Families (ACF) Child Maltreatment Report from 2006, there are multiple types of maltreatment which include some that are more loosely defined, but most of which belong to five main categories – physical abuse, neglect, medical neglect, sexual abuse, and psychological or emotional maltreatment (DHHS, 2005). There is also an “other” category that includes all other incidents that do not fall into one of the main categories. According the report, in the US in 2006, “an estimated 905,000 children were victims of maltreatment; the rate of victimization was 12.1 per 1,000 children in the population; and nearly 3.6 million children received a CPS investigation or assessment”
More specifically, “64.1 percent of victims experienced neglect, 16.0 percent were physically abused, 8.8 percent were sexually abused, 6.6 percent were psychologically maltreated, 2.2 percent were medically neglected, and 15.1 percent of victims experienced such "other" types of maltreatment as "abandonment," "threats of harm to the child," or "congenital drug addiction" (DHHS, 2005).

The most comprehensive source of information about the current incidence of child abuse and neglect in the United States is considered to be The Third National Incidence Study of Child Abuse and Neglect (NIS-3; Sedlak & Broadhurst, 1996). It is a congressionally mandated study of a nationally representative sample of over 5,600 professionals in 842 agencies serving 42 countries. The NIS-3 utilized two standardized definitions of abuse and neglect, the Harm Standard and the Endangerment Standard. The Harm Standard considered children identified to the study to be maltreated only if they had already experienced harm from abuse or neglect. The Endangerment Standard considered children who experienced abuse or neglect that put them at risk of harm to be maltreated, together with the already-harmed children. When using the Harm Standard, 1,553,800 children were abused or neglected in 1993, including 217,700 sexually abused children, 338,900 physically neglected children, 212,800 emotionally neglected children, and 381,700 physically abused children. According to the National Child Abuse and Neglect Data System established by the Children’s Bureau of the U.S. Department of Human Services, in 2006, 905,000 cases of child maltreatment were substantiated, including neglect, medical neglect, physical abuse, sexual abuse, and psychological maltreatment.
While recent federal law clearly defines maltreatment in terms of specific acts or behaviors, psychological research investigates the causes, correlates, risk factors, and treatment of maltreatment, which has resulted in a variety of different types of definitions of psychological or emotional maltreatment (Runyan, Cox, Dubowitz, Newton, Upadhyaya et al., 2005). Similar to the federal definition, psychiatrists and psychologists have defined child maltreatment as “the intentional harm or threat of harm to a child by someone acting in the role of caretaker, for even a short time” (Wissow, 1995, p. 1425). Specifically, neglect was defined as “the failure of a caretaker to provide basic shelter, supervision, medical care, or support; physical abuse was defined as “inflicting bodily injury through excessive force or forcing a child to engage in physically harmful activity”; sexual abuse was defined as “the inappropriate exposure of a child to sexual acts or materials, the passive use of children as sexual stimuli for adults, and actual sexual contact between children and older people”; emotional abuse was defined as “coercive, demeaning, or overly distant behavior by a parent or other caretaker that interferes with a child’s normal social or psychological development” (p. 1425).

The maltreatment literature subsumes both broad theories and models that are extensive in their coverage of the consequences of maltreatment and narrow diagnosis and symptom level effects (Chaffin, Silovsky, & Vaughn, 2005; Harkness, Bruce, & Lumley, 2006; Kim & Cicchetti, 2003; Weitzman, 2005; Wekerle, Miller, Wolfe, Spindel, 2006). “Maltreatment sets in motion a probabilistic path of epigenesis for children characterized by failure and disruption in the successful resolution of major stage-salient issues of development that have grave implications for functioning across
the life span” (Cicchetti, 2004, p. 731). The effects of maltreatment are so varied according to different child, family, and environmental factors and interactions between and among these factors, that it is difficult to predict the impact maltreatment will have on children’s mental health (Cicchetti, 2004; Cicchetti & Toth, 2005; Pollak & Tolley-Schell, 2003; Runyon, 2002; Wolfe, 2001). In a summary of three decades of research on child maltreatment, Cicchetti indicates that the theory that maltreatment arises as a result of a single risk factor alone (e.g., parental psychopathology, parental maltreatment history, living in poverty) has been unsubstantiated in favor of theoretical models that incorporate multiple risk factors within an ecological, transactional system. Cicchetti and Lynch (1993) developed a model that depicts maltreatment as a function of both potentiating, factors that increase the probability of maltreatment, and compensatory, factors that decrease the likelihood of maltreatment, processes at different levels of social ecology from distal (i.e., culture, community) to proximal (i.e., family, individual). This model posits that negative developmental outcomes result when vulnerability factors surpass protective factors and resilient outcomes result when protective factors surpass vulnerability factors. Mutually influencing transactions occur among risk factors on different levels of the social ecology. “The balance among risk and protective factors and processes both determines the likelihood of maltreatment occurring and influences the course of subsequent development” (Cicchetti, 2004, p. 732). This theoretical model, considered the most comprehensive and widely accepted, accounts for both the precursors of maltreatment and the effects of maltreatment in a developmental context that includes rationale for both negative and resilient outcomes.
While theoretical models have been developed to explicate how the negative effects of maltreatment can have wide-reaching influence on other areas of development (Cicchetti & Toth, 2005; Wekerle et al., 2006), a more specific literature exists exploring the connection between maltreatment and PTSD (Ford, 2005; Lemos-Miller & Kearney, 2006; Scott, 2007). Despite debate early on among researchers, a link between child sexual and physical abuse and PTSD has since been established (Dubner & Motta, 1999; Kaplow, Dodge, Amaya-Jackson, & Saxe, 2005; Putnam, 1997). However, a significant dearth remains in the literature on this relationship in minority samples with existing studies suffering from small sample sizes (Mennen, 2004) or limited to only inpatient (Lemos-Miller & Kearney, 2006) or foster care (Dubner & Motta, 1999) samples. In a comparison of three groups of predominantly African-American and Hispanic foster care children, Dubner and Motta (1999) reported that 60% of the sexually abused group and 42% of the physically abused group were diagnosed with PTSD based on a conservative assessment that included a self-report questionnaire and structured clinical interview. Interestingly, 18% of the nonabused group was also diagnosed with PTSD, which authors attributed to other forms of reported trauma, such as witnessing acts of familial violence and violent crimes. While this study was one of the first to compare sexually abused, physically abused, and nonabused groups separately, there are still problems with the way the authors categorized trauma. Specifically, there was no group for other types of trauma, such as exposure to violence, and children who reported experiencing both sexual and physical abuse were excluded from the study. Without a more comprehensive assessment of trauma, it is difficult to know what types of additional traumas the children
in each of the groups may have experienced. Furthermore, the exclusion of multiply
traumatized children omits an important contribution to the understanding of the link
between maltreatment and PTSD, and fails to provide much needed empirical evidence
on a subset of children who often present clinically but are rarely represented in scientific
research. Even as this study is one of very few to focus on African-American and Latino
children, future work is clearly needed with more diverse populations to examine the
association between trauma and PTSD.

Although now widely accepted that childhood maltreatment leads to negative
outcomes, research has recently sought to apply scientific rigor to address the more
specific questions of when this relation occurs, what factors confound it, and what
specific outcomes result. One such study provides evidence of an immediate temporal
link between childhood sexual abuse and childhood anxiety disorders, while controlling
for other confounding factors (Chaffin, Silovsky, & Vaughn, 2005). In their investigation
of 158 (75% Caucasian and 25% African-American) sexually abused, 6-13 year old
children and their caretakers, Chaffin and colleagues (2005) used a sequential study
design to control for variables, such as family environment, that, in some studies, have
been interpreted as attributable for negative outcomes above and beyond maltreatment
effects (Nash, Hulsey, Sexton, Harralson, & Lambert, 1993; Rind et al., 1998). No other
studies exist, as yet, that use such a design to analyze the temporal concordance of child
abuse onset and the onset of childhood disorder. Not only did their results show that the
onset of PTSD occurred sequentially with the onset of sexual abuse, but that concordant
increases in risk for developing most other childhood anxiety disorders occurred around
the point of sexual abuse onset as well (Chaffin, Silovsky, & Vaughn, 2005). Authors suggest that these findings support their hypothesis that child sexual abuse can directly cause these disorders.

To truly determine causality, experimental designs with random assignment of subjects are necessary. However, considering the impossibility of conducting a highly unethical experimental design assigning children to abusive or nonabusive families, researchers must develop alternative means of answering such research questions. Temporal sequencing is one means of ascertaining causality in the link between child sexual abuse and anxiety disorders, yet the mechanisms underlying this causality remain understudied.

Another research method used to ascertain causality in the relation between maltreatment and psychopathological outcomes is genetic studies of twins. Jaffee and colleagues (2004) used a unique longitudinal-epidemiological design to investigate whether physical maltreatment leads to antisocial behavior by an environmental causal process or through genetic transmission. In their sample of 1,116 twin pairs born in England and Wales, researchers report physical maltreatment, measured by mother-report at age 5, predicted antisocial behavior at ages 5 and 7, assessed by mother- and teacher-report (Jaffee, Caspi, Moffitt, & Taylor, 2004). Even after controlling for antisocial behavior at age 5, physical maltreatment predicted the emergence of new antisocial behavior over time between ages 5 and 7. Analysis of genetic factors eliminated the possibility that any heritable characteristic of the child, such as antisocial behavior inherited from parents, provoked maltreatment. The relation between physical
maltreatment and children’s antisocial behavior was only partially accounted for by the effect that parents with a prior history of antisocial behavior are more likely to maltreat their children. Genetic factors accounted for 56% of the effect of physical maltreatment on children’s antisocial behavior; however, physical maltreatment significantly predicted elevated antisocial behavior scores even after controlling for the genetic predisposition for antisocial behavior. These findings led authors to conclude that, while some researchers have warned of incorrectly attributing childhood antisocial behavior to physical maltreatment when it may be genetically mediated, “physical maltreatment plays a causal role in the development of children’s antisocial behavior beyond this genetically mediated effect” (Jaffee, 2004, p. 51). Authors stress that their findings, combined with previous research, “provide the clearest support possible within the limits of ethical human research” that physical maltreatment is causally implicated in the etiology of antisocial behavior (p. 52).

Research is continually adding empirical evidence to the long-standing notion that maltreatment leads to antisocial behavior and other types of psychopathology, but the devastating impact of maltreatment reaches other areas of development as well. These other areas may appear less relevant because they are more discrete or less behaviorally disruptive or distressful, however, they are extremely important because they act more subtly, impact a wide-range of development, and may act as mediators for more severe psychopathology. Pollak and Tolley-Schell (2003) investigated the effects of maltreatment on information processing in a sample of 8-11 year old physically abused children (70% African-American, 15% Hispanic, 15% Caucasian). Results indicated that
physically abused children have difficulty disengaging attention from angry facial
cues. “Physically abused children have a specific, or differential, deficit involving
attentional processing of anger” (p. 336). “Difficulty controlling attention when
processing threatening interpersonal signals may make it difficult for abused children to
accurately perceive and regulate emotions in social contexts” (p. 337). Authors propose
that this type of deficit may mediate maltreated children’s increased risk for
psychopathology. This study highlights the necessity of thorough, detail-oriented
research that may find more specific attentional deficits as opposed to studies of only
global disturbances of attention, which may fail to find significant results. Lastly, child
sexual abuse predicts internalizing and externalizing problems, compared to other
variables, especially, prior abuse (Hebert, Collin-Vezina, Daigneault, Parent, &
Tremblay, 2006). In recent years, research validating the detrimental outcomes of
maltreatment has become more sophisticated, allowing for causal statements to be made
(Chaffin, Silovsky, & Vaughn, 2005; Jaffee, Caspi, Moffitt, & Taylor, 2004), more fine-tuned, allowing for specific deficits which may impact other areas of development to be
identified (Pollak & Tolley-Schell, 2003), and better able to examine long-term effects
(Harkness, Bruce, & Lumley, 2006; Kaplow & Widom, 2007; Wolfe, Scott, Wekerle, &
Pittman, 2001).

Long-term consequences of maltreatment have been demonstrated through
research investigating the relationship between history of childhood maltreatment and
difficulties in adolescence. In a study utilizing a community sample of high school
adolescents, researchers investigated the relationship between self-reported history of
childhood maltreatment and current clinically relevant adjustment problems, including measures of emotional distress, delinquency, depression, posttraumatic stress, dissociation, and dating violence (Wolfe et al., 2001). One third (462/1,419) of the community sample reported maltreatment as indicated by exceeding cutoff scores on the Childhood Trauma Questionnaire, with indices of emotional, physical, and sexual abuse and emotional and physical neglect. The maltreatment history and current functioning of the community sample were compared to the maltreatment history and current functioning of a sample of adolescents with known maltreatment histories identified by CPS for purposes of ensuring the validity of the community sample’s self-reported maltreatment history and no significant differences emerged. Among boys and girls, those with maltreatment histories reported significantly more clinical-level adjustment problems in adolescence than those without such histories. Girls with maltreatment histories were at increased risk of clinically significant levels of anger, depression, anxiety, and posttraumatic stress symptoms. These girls were also more likely to be involved in nonviolent and violent delinquency, to report carrying a concealed weapon, and to be a victim of sexual abuse by a dating partner. Males with maltreatment histories were at increased risk of clinically significant levels of depression, posttraumatic stress, and overt dissociation. They were also more likely to report abuse perpetration, using physical abuse against their partners and engaging in threatening behavior, and victimization, having a partner who has used threats and being physically and sexually abused (Wolfe et al., 2001). The maltreatment histories of the community sample were unreported, yet these adolescents may be referred for their elevated symptoms of
emotional distress, delinquency, and adolescent dating violence, which are common reasons for referral among high-school age populations. Gender differences reported in this study highlight the need to examine how maltreatment in childhood leads to immediate consequences and how those may relate to long-term negative outcomes that may change over time.

Another recent study investigates the impact of childhood maltreatment on increased sensitization to stressful life events prior to depression onset in adolescence (Harkness, Bruce, & Lumley, 2006). Of a sample of 103 depressed and nondepressed adolescents, those with a history of childhood abuse and/or neglect had a lower threshold of independent life events precipitating the onset of first depressive episode than did those with reporting no early trauma. Authors propose that their findings indicate that having a history of child abuse and neglect sensitizes adolescents to stressful life events, such that a lower level of stressful event is needed to induce depression (Harkness et al., 2006). In addition, adolescents reporting childhood abuse and/or neglect had a significantly higher threat level of chronic difficulties than those with no history of early trauma. While it cannot be assumed that chronic difficulties mediated the relation between childhood trauma and stress sensitization, this result suggests that within a context of chronic adversity, lower levels of stressful life events are necessary to elicit onset of first depressive episode (Harkness et al., 2006). The inclusion of both documented and undocumented reports of childhood maltreatment in this study contributes to the breadth of types and severity levels of abuse that increases the generalizability of these findings to clinical populations. However, the lack of analysis of
different types and levels of severity makes results difficult to interpret, as differences could exist between adolescents who reported minor experiences as compared to those who experienced severe abuse. Additionally, it would have been interesting to know if outcomes other than depression, or comorbid conditions, would have shown a similar pattern of results. At the same time, the examination of enduring consequences of maltreatment from childhood to adolescence is a complex task that entails an accumulation of studies exploring multiple research questions. This study sets the stage for such future research as “the effect of childhood maltreatment on stress sensitization may play out through pathological processes that have different implications at different ages (adolescent versus adult) and at different stages of the depression syndrome (first onset versus recurrence)” (p. 740).

The psychological effects of maltreatment are coupled with financial costs as well, including both direct (e.g., hospitalization, chronic health problems, mental health, child welfare, law enforcement, and judicial system costs) and indirect costs (special education, juvenile delinquency, adult mental health and health care, lost productivity to society, and adult criminality). The estimated cost of child maltreatment in the U.S. per year is 94 billion (Cicchetti, 2004; NCTSN, 2003).

Although a great deal of research has accumulated which investigates the consequences of maltreatment in childhood, definitive conclusions have been hindered by inconsistencies in the definition of maltreatment and how it is operationalized (Arata, 2002; Cicchetti & Toth, 2005; Runyan et al., 2005). Maltreatment has been difficult to conceptualize for a number of reasons, some unavoidable. First, confusion exists
between the definition of child maltreatment within varied fields of social science research and its necessary legal definition (Runyan et al., 2005). Second, views on what is considered within the realm of appropriate parental discipline and what is considered maltreatment have changed throughout history, vary by culture, and still have yet to be clearly established (Cicchetti, 2004). Third, findings from studies of the effects of maltreatment are difficult to compare because the maltreatment variable is heterogeneous and has been operationalized in different ways (Finkelhor, Ormrod, & Turner, 2007). For example, some studies include samples of maltreated children with histories of sexual abuse, physical abuse, and neglect, whereas others include only one of those types of maltreatment. Lastly, research on trauma or maltreatment with children and adolescents also introduces the issue of mandating reporting of child abuse (Steinberg, Pynoos, Goenjian, Sossanabadi, & Sherr, 1999). The sensitivity of these topics when working with children and adolescents and the other ethical issues that such sensitivity raises can impede research progress. In some instances researchers may not know how to handle these issues or may structure their research to avoid having to tackle difficult questions at the cost of more accurate research. However, there is a growing literature with specific information for researchers to address maltreatment issues (Amaya-Jackson, Socolar, Hunter, Runyan, & Colindres, 2000; Becker-Blease & Freyd, 2006; King & Churchill, 2000).
Exposure to Community Violence

The trauma type affecting the most children in countries around the world and, particularly in the US, on a daily basis is exposure to community violence (Garbarino, Dubrow, Kostelny, & Pardo, 1992). The mental health field began to recognize and investigate the effects of violence exposure on children in the 1990s, and the US government followed with the Surgeon General’s 2001 report, which identified violence as the greatest threat to the lives of children and adolescents. Exposure to community violence is defined as “frequent and continual exposure to the use of guns, knives, and drugs, and random violence” (Osofsky, 1995, p. 782) and occurs in two forms, direct victimization or witnessing of violence against someone else (Richards, Larson, Miller, Luo, Sims, & Parrella, 2004). Young people ages 12 to 24 were four times more likely to directly experience violent victimization than were people of other ages (U.S. Department of Justice, 2003). In a nationally representative sample of youth ages 2-17 years, 53% experienced a physical assault, 27% a property offense, 13% a form of maltreatment, 8% a sexual victimization, and 35% witnessed violence or experienced indirect victimization (Finkelhor, Ormrod, Turner, & Hamby, 2005).

Children’s exposure to community violence occurs across the nation among various cultures and ethnic groups, but it is especially a problem in urban African American communities (Hill & Madhere, 1996; Ozer, Richards, & Kliewer, 2004). For urban youth, chronic exposure to community violence is becoming more a part of their daily life, as well as their development into adulthood (Luthar & Goldstein, 2004; Ozer, Richards, & Kliewer, 2004). Two recent studies of urban adolescents found that, in one
sample, 50% of students reported seeing someone beat up and 20% saw someone shot or killed (Gorman-Smith, Henry, & Tolan, 2004), and in another sample, 75% of 7th grade students reported either witnessing or being victimized by an act of violence (Ozer & Weinstein, 2004). A review of 25 original studies investigating the prevalence and consequences of witnessing community violence during childhood and adolescence found that males, ethnic minorities, and urban residents are at increased risk for witnessing violence (Buka, Stichick, Birdthistle, & Earls, 2001). Overall, when reviewing only the studies using a low income, urban sample, the variability was significantly reduced and the reported rate of witnessing a murder was typically 25%. As compared to Caucasian samples, African-American and Latino samples had consistently higher rates of exposure to violence (Buka et al., 2001). In one African-American sample, the percentage who witnessed a murder was 46 times higher than a sample of middle-upper class Caucasian adolescents (Buka et al., 2001). In another study, 74% of African-American 13-16 year old urban adolescent males had seen someone shot or an attempted shooting with a gun and almost 30% of the sample had been shot or shot at themselves (Paxton, Robinson, Shah, & Schoeny, 2004).

It is difficult to separate race and ethnicity from socioeconomic status, however, as low-income urban neighborhoods often remain segregated by race and ethnicity and are predominately populated by ethnic minority groups. Benton and Stabb (1996) collected data from police reports of incidences of violent criminal acts, including robbery, assault, rape, and murder, within the vicinity of adolescents’ homes and schools to maintain that African-American males are exposed to more violent crimes in their
neighborhoods and schools than are Caucasian males. A study using a sample of African-American and Latino adolescents from a Catholic high school in Chicago found, based on data from the Chicago Homicide Data set, that 75% of African Americans resided in the highest crime neighborhoods, defined as 10+ murders per year within a few square blocks (Rasmussen, Aber, & Bhana, 2004).

**Other Types of Trauma**

While maltreatment and exposure to community violence each have large, separate literatures, a variety of trauma types have smaller literatures that are viewed as separate entities. In addition to exposure to community violence, researchers have regularly studied the psychopathological effects on children exposed to domestic violence (Chemtob & Carlson, 2004; Drotar, Flannery, Day, Friedman, Creeden, & Gartland, 2003; Lehmann & Elliston, 2001; Levendosky, Huth-Bocks, Semel, & Shapiro, 2002; Margolin & Vickerman, 2007; Spilsbury et al., 2007) and war (Husain, Allwood, & Bell, 2008; Thabet, Tawahina, El Sarraj, & Vostanis, 2008). Some psychology research has included the study of both witnessing of family and community violence (Hyde, Lamb, Arteaga, & Chavis, 2008) and others have discussed how exposure to community violence can be similar to growing up in areas of war and civil conflict (Garbarino, Kostelny, & Dubrow, 1991; Luna, 2006). Investigations of child and adolescent trauma include traumatic events ranging from natural disaster (Anthony, Lonigan, & Hecht, 1999; Chemtob, Nakashima, & Carlson, 2002; McDermott, Gibbon, & Lee, 2005; Vernberg, La Greca, Silverman, & Prinstein, 1996), to traumatic loss (Mahoney & Clarke, 2004), burn (Rivlin & Faragher, 2007; Saxe et al., 2005; Stoddard et al., 2006),
fire (Dorn, Yzermans, Spreeuwenberg, Schilder, & van der Zee, 2008; Dyregrov, Frykholm, Lilled, Broberg, & Holmberg, 2003), road traffic or motor vehicle accidents (Keppel-Benson, Ollendick, & Benson, 2002; Meiser-Stedman, Yule, Smith, Glucksman, & Dalgleish, 2005; Schafer, Barkmann, Riedesser, & Schulte, 2004; Stallard & Smith, 2007), and dog attacks (Rossman, Bingham, & Emde, 1997).

Due to the limited number of each different trauma type included in this study, an extensive discussion of the literature for each type would be excessive. Thus, the extended literature review on trauma is limited to maltreatment and exposure to community violence. The rationale for a focus on maltreatment in this study is twofold; (1) maltreatment is the predominant trauma type of the sample, and (2) maltreatment has traditionally been considered to be the most important type of trauma related to the dissociative disorders (Putnam, 1997). Similarly, the focus on exposure to community violence is due to the significant presence of this trauma in the community surrounding the clinic from which data are being collected. Additionally, a majority of the maltreatment literature is composed of studies with samples that separate children that meet maltreatment qualifications from children who have experienced other types of trauma (Finkelhor et al., 2007), such as community violence. In many studies of child and adolescent trauma, there is no assessment of other types of traumatic experiences and it remains unknown whether maltreatment alone, or in combination with other traumas affects outcomes (Finkelhor et al., 2007). Still, other studies may assess for multiple types of trauma or for a specific type of trauma, but without an assessment for a maltreatment history. A burgeoning recognition of other types of trauma as relevant to
dissociative experiences and other outcomes necessitates inclusion of multiple types of trauma in this study.

*Severity of Trauma*

Another important aspect of understanding the effects of trauma in children and adolescents is the severity of traumatic event. Severity of sexual abuse has shown a positive dose-effect relation with increase in risk for developing new anxiety disorders (Chaffin, Silovsky, & Vaughn, 2005). Specific kinds of abuse severity were related to PTSD as compared to other anxiety disorders. Specifically, force, violence, or coercion involved in the abuse and involved in keeping the abuse secret were related to increased risk of PTSD. Alternatively, behavioral severity of abuse, duration, and number of abuse incidents, but not force, coercion, or violence, were associated with the development of other anxiety disorders excluding PTSD. Other trauma types in addition to sexual abuse have reported severity effects. The likelihood of having been physically maltreated demonstrated a dose-response relationship with children’s antisocial behavior at 5 and 7 years (Jaffee et al., 2004). Antisocial behavior scores in the possibly maltreated group were a .5 standard deviation higher than those in the nonmaltreated group and scores in the definitely maltreated group were .8 standard deviations higher than those in the nonmaltreated group, suggesting that severity of maltreatment predicts antisocial behavior. These findings point to the relevance of assessing both severity and frequency of trauma, as each contributes unique risk for PTSD, childhood anxiety disorders, and antisocial behavior. However, the way in which severity has been operationalized in research has led to inconsistencies that make interpretation of findings difficult. More
research needs to be done to investigate the role of severity and how issues of frequency could be confounding effects found in studies of severity.

*Frequency of Trauma*

Another key delineator of childhood trauma exposure is the frequency of occurrences of the traumatic stressor. Frequency, defined as the rate at which a trauma occurs, ranges from single-event acute incidents, repeat occurrences, multiple occurrences, and chronic daily traumatic stressors. Measuring and examining frequency is essential in research seeking to understand trauma and its effects. In fact, measuring frequency, as a simple additive count of traumatic events, without taking into account severity of type of trauma, is a worthwhile endeavor in and of itself in such an early stage of investigating multiple trauma exposures (Finkelhor et al., 2007). Increased frequency has been shown to worsen PTSD symptoms (Frans, Rimmo, Aberg & Fredrikson, 2005) and increase risk of revictimization (Arata, 2002), in adults, and to determine the severity of the posttraumatic response in children (Copeland, Keeler, Angold, & Costello, 2007; Finkelhor et al., 2007). In adults, frequency of traumatic events has been shown to increase risk for PTSD (Frans et al., 2005). In fact, in a sample of 1,824 men and women, trauma frequency and intensity accounted for more of the variance, 23%, than trauma type, 16%, or gender, 2%, suggesting that frequency and intensity are major factors in determining PTSD (Frans et al., 2005). Assessing frequency of trauma is necessary because many times the traumatic event being studied is preceded by other traumatic events (Finkelhor et al., 2007) or, even in cases of single-event trauma, there is a significant increase in risk of revictimization (Arata, 2002). In a review of 17 studies
reporting rates and examining effects of adult/adolescent sexual revictimization among child sexual abuse victims, approximately one-third reported experiencing repeated victimization (Arata, 2002). As compared to women without histories of child sexual abuse, repeated victims have a two to three times greater risk of adult revictimization. The two greatest predictors of revictimization include physical contact in abuse and revictimization in adolescence. In fact, some authors report evidence suggesting adolescent victimization may serve as a mediator between child and adult victimization. Women who were repeated victims reported more symptoms of PTSD and dissociation than women with a history of child sexual abuse alone (Arata, 2002).

While in the study of sexual abuse, multiple traumatic incidents are related to worse symptoms, studies including a broader range of trauma types report that most children experience few PTS symptoms in response to their initial trauma exposure (Copeland et al., 2007). Copeland and colleagues investigated the developmental epidemiology of potential trauma and PTS symptoms in a longitudinal community sample of 1,420 children aged 9, 11, and 13 years at intake and followed annually through 16 years of age. Types of trauma assessed in their study included exposure to violence, sexual trauma, other injury or trauma, including diagnosis of physical illness, serious accident, natural disaster, fire, exposure to noxious agent, and witnessing/learning about trauma. Researchers found that only 1.4% of individuals reported subclinical PTSD in response to their first trauma exposure. Previous trauma exposure was one of the most important determinants of trauma response in the next year (Copeland et al., 2007). They also found that multiple trauma exposures significantly predicted higher
rates of painful recall and subclinical PTSD. In fact, both PTS symptoms and rates of impairment (i.e., disruption of important relationships, school problems, and worsening of emotional problems) increased along with the number of traumatic events experienced. Studies that include a broader range of trauma type and a longitudinal design following from childhood to mid adolescence are better able to recognize the pronounced effect of frequency on symptom severity. Specifically, frequency may be a determining factor in which children develop symptoms after trauma exposure and which do not and how severe those symptoms are. In order to more fully understand how frequency of trauma impacts symptom severity and risk for future trauma, more research needs to be done to assess frequency across a broad range of types of traumatic events.

Finkelhor and colleagues (2007) conducted one of the only available reports on frequency of trauma across a broad range of types of traumatic events. In a large, nationally representative sample of 2,030 children ages 2-17, researchers specifically investigated if frequency of trauma impacts symptomatology as assessed by three scales of the Trauma Symptom Checklist for Children (TSCC; Briere, 1996) and the Trauma Symptom Checklist for Young Children (TSCYC; Briere et al., 2001). Authors assessed a wide range of traumatic events, or victimization experiences, occurring within the previous year and divided into six aggregates including sexual victimization, physical assault, property victimization, maltreatment, peer/sibling victimization, witnessing/indirect victimization. Almost all of the children who had experienced any type of victimization had experienced at least one additional, different type of victimization within the last year. Children experiencing four or more different kinds of victimizations
in a single year (96% across three or more of the six aggregate victimization domains), or poly-victims, reported significantly higher clinical level trauma symptoms. When researchers included poly-victimization in analyses, the predictive power of individual types of victimization was either eliminated or greatly reduced. “These substantial reductions in the associations between individual victimizations and symptom levels suggest that much of the presumed influence of particular victimization types may instead be due to the underlying effect of poly-victimization” (Finkelhor et al., 2007, p. 16).

Authors compared the symptom scores of low poly-victims (4-6 victimizations of multiple type) and high poly-victims (seven or more victimizations of multiple type) with non-victims, single victims (only one victimization of one type), and chronic victims (multiple victimizations of one type). The anxiety and depressive symptom scores of low and high poly victims were significantly higher than those of single and chronic victims for a majority of the models analyzed. Taken together, these findings suggest that assessing for multiple victimizations across different types of trauma is imperative if researchers are to accurately investigate relations between individual trauma types and trauma symptomatology. In fact, studies that assess for only the individual trauma type of interest may misinterpret significant effects that are actually due to unknown multiple victimization histories. “It is possible that studies and meta-analyses concerned with single forms of victimization like sexual abuse or exposure to community violence may have overestimated the unique association between these single forms and various negative outcomes, because they did not adequately control for other kinds of victimization. The findings also suggest that researchers need to search more carefully
and systematically for potential cumulative and interactive effects among different kinds of child victimization.” Authors stress the need to identify why children become poly-victims, how resilience and vulnerability factors impact poly-victims, and how developmental stage and gender impacts poly-victimization. This study is one of the first to include a broad range of trauma types in an investigation of frequency of trauma and there are many limitations to the data. Only traumatic events occurring within the previous year were assessed, some of the most severe kinds of child victimizations, such as sexual abuse, were rare in the sample, being nationally representative, the results can not be generalized to clinical samples or to urban, low-income, at-risk youth.

**Complex Trauma**

A newly emerged category of trauma, complex trauma, has recently received increased attention in the field (Cook et al., 2005). The need for this new category was born out of a dissonance between the current DSM-IV diagnosis of PTSD and the symptom presentation of patients with histories of chronic trauma beginning in childhood (Van der Kolk & Courtois, 2005). This problem impacts both research and clinical settings, as traumatized individuals with multiple comorbid diagnoses are the norm in clinical settings, yet are frequently excluded from studies of PTSD, resulting in a lack of applicable research to inform diagnosis or treatment (Van der Kolk & Courtois, 2005). A group of researchers have argued for a new diagnosis, Developmental Trauma Disorder, to encapsulate the array of symptoms and developmental effects that the PTSD diagnosis fails to capture in individuals who have experienced complex trauma (Cook et al., 2005; Van der Kolk, 2005). “This provisional diagnosis is based on the concept that multiple
exposures to interpersonal trauma, such as abandonment, betrayal, physical or sexual assaults, or witnessing domestic violence, have consistent and predictable consequences that affect many areas of functioning” (Van der Kolk, 2005, p. 406).

Complex trauma is “the experience of multiple, chronic and prolonged, developmentally adverse traumatic events, most often of an interpersonal nature (e.g., sexual or physical abuse, war, community violence) and early-life onset” (Van der Kolk, 2005, p. 402). The National Child Traumatic Stress Network (NCTSN; 2003) complex trauma task force defines complex trauma as a dual problem consisting of first exposure and secondarily the subsequent immediate and long-term outcomes. The exposure component typically involves chronic exposure, beginning at an early age, to multiple traumatic events within a care-giving system that is normally expected to provide a safe and stable social environment (NCTSN, 2003). In a DSM-IV Field Trial sample of 528 adolescents and adults, Van der Kolk and colleagues (2005) report that particularly for interpersonal trauma, the younger the age of onset and the longer the duration, the more likely one is to develop both PTSD and the cluster of Disorders of Extreme Stress Not Otherwise Specified (DES CONS) symptoms (i.e., difficulties with regulation of affect and impulses, memory and attention, including dissociative symptoms, self-perception, interpersonal relations, somatization, and systems of meaning). While this study considered type of trauma (interpersonal vs. instrumental), age of onset, and duration of trauma, researchers acknowledge that they did not analyze frequency, or number of traumatic events experienced by participants, which may have contributed to symptoms.
The immediate and long-term outcomes component of complex trauma includes a range of clinical symptoms, which include but also extend beyond, posttraumatic stress symptoms (NCTSN, 2003; Cook et al., 2005). In fact, the NCTSN outlines the impact of these symptoms across multiple domains of impairment including, “(a) self-regulatory, attachment, anxiety, and affective disorders in infancy and childhood; (b) addictions, aggression, social helplessness and eating disorders; (c) dissociative, somataform, cardiovascular, metabolic, and immunological disorders; (d) sexual disorders in adolescence and adulthood; and (e) revictimization” (NCTSN, 2003, p. 5). The NCTSN stresses the range of difficulties that children experience as a result of multiple and chronic trauma exposure and the failure of the current psychiatric diagnostic classification system to capture the developmental impact of trauma exposure in childhood (NCTSN, 2003). More often than PTSD, other diagnoses given to abused and neglected children include Depression, Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder, Generalized Anxiety Disorder, Separation Anxiety Disorder, and Reactive Attachment Disorder (NCTSN, 2003; Cook et al., 2005). “Each of these diagnoses captures an aspect of the traumatized child’s experience, but frequently does not represent the whole picture. As a result, treatment often focuses on the particular behavior identified, rather than on the core deficits that underlie the presentation of complexly traumatized children” (NCTSN, 2003, p. 6).

The NCTSN Complex Trauma Taskforce has identified seven domains of impairment, based on the child clinical and research literatures, which include: (I)
Attachment, (II) Biology, (III) Affect regulation, (IV) Dissociation, (V) Behavioral regulation, (VI) Cognition, and (VII) Self-concept. In the table below (from NCTSN, 2003, p. 7), each domain is presented with its associated symptoms. These symptoms are not static, as they “occur within a developmental context and in turn impact further development” (NCTSN, 2003, p. 6).

Table 1 Domains of Impairment in Children Exposed to Complex Trauma

<table>
<thead>
<tr>
<th>I. Attachment</th>
<th>V. Behavioral regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty about the reliability and predictability of the world</td>
<td>Poor modulation of impulses</td>
</tr>
<tr>
<td>Problems with boundaries</td>
<td>Self-destructive behavior</td>
</tr>
<tr>
<td>Distrust and suspiciousness</td>
<td>Aggression against others</td>
</tr>
<tr>
<td>Social isolation</td>
<td>Pathological self-soothing behaviors</td>
</tr>
<tr>
<td>Interpersonal difficulties</td>
<td>Sleep disturbances</td>
</tr>
<tr>
<td>Difficulty attuning to other people’s emotional states</td>
<td>Eating disorders</td>
</tr>
<tr>
<td>Difficulty with perspective taking</td>
<td>Substance abuse</td>
</tr>
<tr>
<td>Difficulty enlisting other people as allies</td>
<td>Excessive compliance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Biology</th>
<th>VI. Cognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensorimotor developmental problems</td>
<td>Difficulties in attention regulation and executive functioning</td>
</tr>
<tr>
<td>Hypersensitivity to physical contact</td>
<td>Lack of sustained curiosity</td>
</tr>
<tr>
<td>Analgesia</td>
<td>Problems with processing novel information</td>
</tr>
<tr>
<td>Problems with coordination, balance, body tone</td>
<td>Problems focusing on and completing tasks</td>
</tr>
<tr>
<td>Difficulties localizing skin contact</td>
<td>Problems with object constancy</td>
</tr>
<tr>
<td>Somatization</td>
<td>Difficulty planning and anticipating</td>
</tr>
<tr>
<td>Increased medical problems across a wide span, e.g., pelvic pain, asthma, skin problems, autoimmune disorders, pseudoseizures</td>
<td>Problems understanding own contribution to what happens to them</td>
</tr>
<tr>
<td>Learning difficulties</td>
<td></td>
</tr>
<tr>
<td>Problems with language development</td>
<td></td>
</tr>
<tr>
<td>Problems with orientation in time and space</td>
<td></td>
</tr>
<tr>
<td>Acoustic and visual perceptual problems</td>
<td></td>
</tr>
<tr>
<td>Impaired comprehension of complex visual-spatial patterns</td>
<td></td>
</tr>
</tbody>
</table>
Table 1 (continued)

III. Affect regulation
- Difficulty with emotional self-regulation
- Difficulty describing feelings and internal experience
- Problems knowing and describing internal states
- Difficulty communicating wishes and desires

IV. Dissociation
- Distinct alterations in states of consciousness
- Amnesia
- Depersonalization and derealization
- Two or more distinct states of consciousness, with impaired memory for state-based events

VII. Self-concept
- Lack of a continuous, predictable sense of self
- Poor sense of separateness
- Disturbances of body image
- Low self-esteem
- Shame and guilt

(Table adapted from NCTSN, 2003)

Complex trauma differs from single-event trauma because the “discrete conditioned behavioral and biological responses to reminders of the single-event trauma”, which typify the PTSD diagnosis, are supplemented with “pervasive effects on the development of the mind and brain” (Van der Kolk, 2005, p. 402). The early age of the child, and thus, dependence on caregivers for security and assistance with appropriate affect regulation is an important element of what differentiates complex trauma from single-event trauma. If a caregiver is continually unavailable to help the child reinstate safety and control during repeated traumatizations, whether because the caregiver is impaired, neglectful, or the perpetrator of abuse, then the child is unable to regulate internal emotional states. During this essential period of brain development, children do not develop the ability to “modulate their arousal” and this results in a “breakdown in their capacity to process, integrate, and categorize what is happening” (Van der Kolk, 2005, p. 403). “If the distress does not ease, the relevant sensations, affects, and cognitions cannot be associated – they are dissociated into sensory fragments – and, as a
result, these children cannot comprehend what is happening or devise and execute appropriate plans of action” (p. 403).

Dissociation can serve a situationally adaptive purpose in terms of a child’s awareness of self and mental experience. Alterations of consciousness such as automatization of behavior, compartmentalization of feelings, and detachment from awareness, protect the child from painful experiences, feelings, memories (Cook et al., 2005). These temporarily mentally protective functions become maladaptive, however, when the child’s developing brain is altered by frequent use of these functions during repeated traumatizations. Dissociation as a coping mechanism is overgeneralized and the child becomes vulnerable to further victimization, learning problems, dysregulated affect, behavioral difficulties, and impaired self-concept (Cook et al., 2005). Dissociation results in many of the impairments listed in the table above and is likely the mechanism through which trauma leads to biological impairments (i.e., altered brain functioning), affect dysregulation, lack of behavioral control, cognitive difficulties, and a deficient self-concept. In order to better understand how dissociation interacts with and effects outcomes of trauma, the history and research on this concept needs further review.

Dissociation

History and Current Diagnostic Systems

The history of how dissociation came to be recognized in children is relevant because it highlights a clinically derived bottom-up approach to conceptualization. Typically, children’s psychopathology is conceptualized from the top-down, that is, derived from adult psychopathology and then applied to children. The problem with a
top-down approach is that often the adult symptoms are a developmentally inappropriate misrepresentation of the disorder in children. It is often unclear if adult disorders are present in childhood and if so, whether or not they present in the same way and with the same symptoms. This lack of clarity can lead to false positives, misdiagnosis of children with disorders they do not have, and false negatives, missing diagnoses of children who do have a disorder, or misdiagnosis of one disorder for another. For example, PTSD was first diagnosed in combat veterans returning from World War II and presenting with symptoms of re-experiencing, avoidance, and arousal, which make up the three symptom clusters in the current DSM. Since that time, the criteria for a diagnosis of PTSD has been applied to, or made to fit, children, despite its genesis in adult combat veterans. Research on PTSD has rapidly expanded from samples of adult veterans to refugees, rape victims, and more recently children exposed to violence and maltreatment. Clinicians, and researchers, however, have struggled with making the PTSD diagnosis “fit” children’s symptom presentations. In contrast, dissociative experiences in children were identified initially by clinicians, and, subsequently, research has been slow to follow.

French psychiatrist Pierre Janet first coined the term “dissociation” when describing in his 1907 text that ‘hysterical’ symptoms (i.e., conversion disorders) arise from the separation or ‘dissociation’ of traumatic material from consciousness” (Holmes et al., 2005, p. 7; Putnam, 1997). Documentation of clinical cases of child and adolescent dissociative disorders dates back to the mid 19th century, although significant psychiatric conceptualization of dissociative experiences did not occur until the 1980s (Putnam,
1997). It was during that time that lists of symptoms were generated by different authors based on individual clinical cases. Similarities in those lists have come together to form a more consistent description of dissociation in children and adolescents, which preceded compilations of single-case reports into larger case series (Putnam, 1997). Although specific definitions of dissociation have varied based on differing perspectives, the general consensus surrounds the idea that dissociation “involves a failure to integrate or associate information and experience in a normally expectable fashion” (p. 7). The DSM-IV TR defines the essential characteristic of the dissociative disorders as “a disruption in the usually integrated functions of consciousness, memory, identity, or perception” (American Psychiatric Association, 2000, p. 519). Recent assessment and treatment guidelines put forth by the International Society for the Study of Dissociation (2004), emphasize the importance of a developmental perspective necessary for understanding dissociation in children and adolescents, “dissociation may be seen as a developmental disruption in the integration of adaptive memory, sense of identity, and the self-regulation of emotion” (p. 123). The definition of dissociation in major diagnostic classification systems such as DSM and ICD-10 has been criticized as overly broad and not clearly operationalized (Holmes et al., 2005). This definitional problem has unfortunately led to a literature full of research that uses inconsistent definitions of the construct and produces indecipherable findings, as most studies base their operational definitions of dissociation on one of these two diagnostic systems. This is also disconcerting considering the current reliance on these systems to both inform diagnosis and, subsequently, treatment, and to serve as manuals in graduate training programs.
which are teaching future clinicians how to conceptualize and diagnose. Much of the early work in understanding symptoms of dissociation, without full-blown disorder, in children and adolescents was abandoned in order to focus on research with only adults or only DSM diagnosable disorders.

The DSM dissociative disorders are primarily defined categorically as lists of symptoms which constitute the five separate disorders of Dissociative Amnesia, Dissociative Fugue, Dissociative Identity Disorder, Depersonalization Disorder, and Dissociative Disorder Not Otherwise Specified. Diagnostic information specific to children and/or adolescents is either limited or completely absent for almost all of these disorders as described in the DSM. According to the DSM-IV TR, Dissociative Amnesia is described as “an inability to recall important personal information, usually of a traumatic or stressful nature, that is too extensive to be explained by ordinary forgetfulness” (American Psychiatric Association, 2000, p. 519). With regard to age specifically, the DSM states that diagnosis of preadolescent children is particularly complicated due to the similarities between dissociative symptoms and inattention, anxiety, oppositional behavior, Learning Disorders, psychotic disturbances, and developmentally appropriate childhood amnesia (American Psychiatric Association, 2000).

Dissociative Fugue is defined by “sudden, unexpected travel away from home or one’s customary place of work, accompanied by an inability to recall one’s past and confusion about personal identity or the assumption of a new identity” (American Psychiatric Association, 2000, p. 519). Thus far there is no research literature on the
presence of this disorder in children or adolescents and it is not mentioned in the DSM beyond specifying that most cases are adults.

Dissociative Identity Disorder (DID) is classified by “the presence of two or more distinct identities or personality states that recurrently take control of the individual’s behavior accompanied by an inability to recall important personal information that is too extensive to be explained by ordinary forgetfulness. It is a disorder characterized by identity fragmentation rather than a proliferation of separate personalities” (American Psychiatric Association, 2000, p. 519). In regard to children, the DSM adds a cautionary note that symptoms cannot be due to imaginary playmates or other fantasy play, but does not elaborate on how symptoms would manifest in children and adolescents or how to differentiate between normal play and psychopathology. Aside from noting in adult cases the common presence of histories of physical and sexual abuse in childhood, the only other mention of children or adolescents in the descriptive text for DID states that “in preadolescent children, particular care is needed in making the diagnosis because the manifestations may be less distinctive than in adolescents and adults” (American Psychiatric Association, 2000, p. 528). These two statements about symptom presentation in children are vague at best and leave the clinician without any additional information about how to recognize or diagnose this disorder in children.

Depersonalization Disorder is described as “a persistent or recurrent feeling of being detached from one’s mental processes or body that is accompanied by intact reality testing” (American Psychiatric Association, 2000, p. 519). The mean age of onset is reported as age 16; however, there is no reference as to how the developmental stage of
adolescence may affect the onset of this disorder or as to how symptom manifestation may differ. The DSM also includes that the disorder “may have an undetected onset in childhood” yet it does not elaborate on how one would go about detecting this disorder in childhood or if it is possible to do so.

Lastly, Dissociative Disorder Not Otherwise Specified is present in the categorical system in order to classify “disorders in which the predominant feature is a dissociative symptom, but that do not meet the criteria for any specific Dissociative Disorder” (American Psychiatric Association, 2000, p. 519). This category could include a variety of different possibilities, none of which have any information on dissociative symptom presentation in children and adolescents. The current DSM utilizes a categorical approach to classify the concept of dissociation into a group of distinct disorders (American Psychiatric Association, 2000). Beyond single statement cautionary notes, neither the descriptive text nor the diagnostic criteria indicate whether or not dissociative experiences and the dissociative disorders are present in children, if so, how dissociative symptoms manifest in children, and how the course of these dissociative experiences and disorders may vary across development.

Dimensional vs. Categorical Models: A Debate

As described earlier, research and clinical conceptualization of dissociative experiences in adults accelerated at the end of the 20th century. It was during this time that it became clear to researchers wishing to advance the field that a reliable and valid measure of dissociation was needed (Putnam, 1997). Constructing validity and reliability requires large samples of individuals, and as is common in psychological measurement,
the complexity of designing instruments for children is deferred for a focus on adults. The Dissociative Experiences Scale (DES; DES-II) is a 28-item self-report measure for adults assessing the percentage of time that an individual has a particular dissociative experience (Bernstein & Putnam, 1986). The DES-II is identical to the DES with the exception of a slightly different answer format; instead of being asked to “mark the line” an individual is asked to “circle the number” (Carlson & Putnam, 1993). The DES was derived from clinical knowledge and case examples and conceptualized dissociation along a continuum, which included experiences ranging from normal to pathological (Bernstein & Putnam, 1986). The dimensional nature of this measure allowed for gathering large empirical data sets from both normal and clinical samples of adults and stimulated further investigation of normative, common dissociative experiences (Putnam, 1997). Until the development of this measure, opposing viewpoints held by 19th century clinicians considered pathological dissociators as either a distinct group of individuals essentially different from normal individuals or a representation of one end of a continuum from normal to pathological (Putnam, 1997).

With the DES came further expansion of the concept of dissociation and scientific debate as to whether it was better suited to discrete categorical classification or a broad dimensional range along a continuum. Taxometric statistical analyses revealed two discrete types of dissociation- normal and pathological, that do not fit a continuum model as had been assumed (Waller, Putnam, & Carlson, 1996). This model posits that pathological dissociators experience dissociative states that most normal individuals do not. Following this shift in thinking, the DES-T was developed which consisted of eight
items from the DES that serve to discriminate among pathological dissociators, who are more likely to endorse items that measure profound amnesia and depersonalization, and normal individuals, who are more likely to endorse items that measure experiences of absorption and enthrallment (Waller, Putnam, & Carlson, 1996). Cardeña and Weiner (2004) have described dissociation as a concept comprised of two categories, compartmentalization and alterations of consciousness.

Compartmentalization is defined as “the lack of integration of psychological processes that should ordinarily be accessible to conscious awareness” and subsumes symptoms such as amnesia and separate identities (Cardeña & Weiner, 2004). Alterations of consciousness is defined as “aspects of the environment are experienced as unreal or experientially detached from the self, with reality testing remaining intact” and subsumes symptoms such as derealization and detachment (Cardeña & Weiner, 2004). These two seemingly inconsistent approaches to dissociation conceptualization, a dimensional model and a categorical model, can both be useful in understanding different types of dissociation and timing of dissociation.

The Link Between Trauma and Dissociation

Lack of a clear consensus about how to conceptualize dissociation does not appear to have impeded a burgeoning empirical literature in support of a significant association between the experience of trauma and pathological levels of dissociation (Putnam, 1997). According to Putnam this literature has converged around four major findings, including, “high levels of reported trauma in patients with dissociative disorders, ‘dose-effect’ relationships between indices of trauma severity and dissociation
scores in samples of patients without dissociative disorders, significantly higher levels of dissociation in traumatized samples than in nontraumatized clinical and nonclinical comparison groups, and peritraumatic dissociation as a predictor of the subsequent development of PTSD” (p. 63). The first finding is primarily comprised of research with adult patients with dissociative disorders who have either self-reported or records have documented trauma histories (Putnam, 1997). The second finding, demonstrated in both adult and child samples, suggests a linear relationship between trauma and dissociation such that higher levels of trauma severity indicate higher levels of dissociative experiences (Diseth, 2006; Putnam, 1997). The third finding is perhaps the most robust in that across numerous studies of a variety of types of trauma and different ages at time of trauma, levels of dissociation are consistently significantly higher for traumatized individuals than nontraumatized individuals (Flannery, Singer & Wester, 2001; Ford, Stockton, Kaltman, & Green, 2006; Putnam, 1997). For non-traumatized people, dissociative experiences and altered states of consciousness can occur in everyday life during religious experiences, drug-altered states, sex, athletics, television watching, and playing videogames (Putnam, 1997). The fourth finding centers on the idea that significant dissociation that occurs at the time of the traumatic event increases the likelihood that an individual will later develop posttraumatic stress disorder (Putnam, 1997; Schafer et al., 2004; Wong, Looney, Michaels, Palesh & Koopman, 2006). In a more recent review, Cardeña and Weiner (2004) concur with Putnam’s four lines of evidence and list three additional, including, “frequent comorbidity of posttraumatic and dissociative symptomatology (Van der Kolk, McFarlane, & Weisaeth, 1996), high
hypnotizability among patients with posttraumatic symptomatology (e.g., Spiegel, Hunt, & Dondershine, 1988), and high correlations between dissociation and PTSD subscales (e.g., Gold & Cardeña, 1998)” (Cardeña & Weiner, 2004, page 496).

While the link between posttraumatic stress symptoms/PTSD and dissociation is robust, hypnotizability as a proxy for dissociation and, a source of evidence for the relationship between trauma and dissociation, is dubious. Some authors have argued that empirical studies show hypnosis and dissociation are largely unrelated, while others note a correlation in clinical cases (Putnam, 1997). Most studies of the relationship between trauma and dissociation have been conducted with war veterans, emergency service workers, and other adult samples with much less research on children and adolescents. Extrapolating from the adult literature when discussing trauma and dissociation in children is often done out of necessity but is problematic in its misunderstanding of children’s symptoms in context of their developmental level.

The term peritraumatic dissociation is used to describe dissociation, which occurs at the time of trauma. “Peritraumatic dissociation is a state in which memory, identity, or perception may be experienced in an altered, disconnected manner, such as experiencing time in slow or rapid motion or perceiving that an ongoing event does not seem real” (Wong et al., 2006, p. 1094). Numerous studies of various populations of adults have established that peritraumatic dissociation may increase the risk of developing acute PTSD, such as in women who lost a pregnancy (Engelhard et al., 2003) and Vietnam veterans (Marmar et al., 1994). Additionally, retrospective studies have examined the association between current posttraumatic stress in adulthood and recall of peritraumatic
dissociation in childhood. Wong and colleagues (2006) investigated predictors of posttraumatic stress symptoms in adults who had a childhood history of a parent diagnosed with cancer. PTSD symptoms in adulthood were strongly and positively correlated with peritraumatic dissociation in childhood. Although this study highlights the relevance of childhood peritraumatic dissociation and suggests increased awareness for health care providers about this issue, it remains a retrospective study of adults and lacks the direct assessment of children that is needed to capture their unique experience of dissociative symptoms. Especially when considering peritraumatic dissociation, which is by definition limited to dissociation at the time of trauma, relying on adult recall of childhood dissociative symptoms in and of itself is problematic, and adult recall of those symptoms specifically at the time of trauma is even more questionable. Assessing children’s dissociative symptoms closer to the actual occurrence of trauma or abuse disclosure would increase validity and improve researchers’ ability to make predictive statements about PTSD.

While the association between peritraumatic dissociation and acute PTSD has been investigated in adult populations, research on peritraumatic dissociation in children and adolescents is scant (Koenen et al., 2005; Schafer et al., 2004). Much of the literature suggests that children and adolescents who experience dissociative symptoms at the time of trauma, or shortly thereafter, are more likely to experience more severe PTS symptoms at a later time (Kaplow, Dodge, Amaya-Jackson, & Saxe, 2005; Saxe et al., 2005). Ehlers, Mayou, and Bryant (2003) in their study of children ages 5 to 16 years involved in a road traffic accident found that persistent dissociation at initial assessment (two
weeks after the accident) predicted PTSD symptom severity at three and six month follow-up. In fact, persistent dissociation was the strongest predictor of PTSD symptom severity at both three and six months, as compared to other cognitive variables. This study, although one of only a few to analyze peritraumatic dissociation, could have benefited from a more comprehensive assessment of dissociation, as their measure consisted of only three items, however the sustained emergence of dissociation as a significant predictor despite the use of only three items suggests the robustness of the finding. Although dissociation tends to be linked more frequently with the traumatic experiences of physical or sexual abuse, this study provides support for the importance of peritraumatic dissociation in trauma of a different type, road traffic accidents. Further research on the role of pathological dissociation in children who have experienced different types of trauma would clarify the question of whether dissociation in children is a universal response despite trauma type or if it is reported more frequently after exposure to one type of trauma than another.

In one of the very few reports of children’s experience of dissociation linked to PTSD at a later time, Kaplow et al., (2005) studied the connection between dissociative symptoms at the time of child sexual abuse disclosure in children ages 8 to 13 years and PTSD and other anxiety symptoms 7 to 36 months later. Authors report “dissociation appeared to be the strongest predictor of PTSD symptoms in this group of children” (p. 1308). Dissociation measured at the time of disclosure, acted as an independent symptom of trauma separate from PTSD and as a direct predictor of later PTSD. Additionally, dissociation predicted PTSD via two pathways: one directly predicted to
PTSD, and one indirectly predicted to PTSD by way of anxiety/arousal symptoms (Kaplow et al., 2005). Authors stressed that the two pathways are consistent with biobehavioral theory, which suggests that anxiety/arousal symptoms are the result of a sympathetic nervous system induced fight-or-flight response and dissociative symptoms are the result of a parasympathetic nervous system induced “freeze” or “immobilization” response. Furthermore, this biobehavioral theory, described by Perry and colleagues, suggests that dissociation is a “more primitive response that occurs only after the fight-or-flight system has been overwhelmed” (Kaplow et al., p. 1308; Perry, Pollard, Blakley, Baker, & Vigilante, 1995). Authors use this theory to explain the unidirectional link between dissociation and anxiety/arousal- “if a child must initially experience arousal/anxiety to reach a dissociated state, then children with dissociation would necessarily experience some symptoms of arousal/anxiety” (Kaplow et al., p. 1308). This interpretation of findings via Perry’s biobehavioral theory posits that initial anxiety/arousal symptoms at the time of trauma fail to secure a successful escape via flight, or defeat via fight, from the traumatic experience, which forces the child to endure and utilize dissociative coping. Perry et al. (1995) describe dissociation as a “surrender” response, based on evolutionary theory, which is particularly adaptive for young children for whom an adult male fight-or-flight response is ineffective. Dissociation, which may have been adaptive or defensive at the time of trauma, becomes the child’s primary means of coping, is present at the time of disclosure, and is predictive of later PTSD. This study adds credence to the idea that dissociation in children is not just a possible, but
not necessary, criterion of PTSD, but that it occurs first, is at the core of the child’s response to trauma, and is predictive of later outcomes, in this case PTSD.

In a similar study, but with a different trauma type, Saxe and colleagues (2005), used path analysis to test a model of risk factors for PTSD in a group of 72 acutely burned 7 to 17 year-old children. Two pathways, one from the size of the burn and level of pain following the burn to the child’s level of acute separation anxiety and then to PTSD, and one from the size of the burn to the child’s level of acute dissociation following the burn, and then to PTSD, accounted for 60% of the variance in PTSD symptoms (Saxe, Stoddard, Hall, Chawla, Lopez, Sheridan et al., 2005). Authors emphasize that, despite current debate over whether anxiety/arousal symptoms or dissociative symptoms are more relevant or more predictive of PTSD, their findings indicate that both symptom clusters make important independent contributions and map onto the corresponding biobehavioral theory discussed in the earlier study by Kaplow and colleagues (2005; Saxe et al., 2005). Specifically, they cite Perry and colleagues (1995) theory to explain that the dissociative pathway is part of a “freeze-or-surrender immobilized response” that occurs “when the child cannot diminish the threat by means of the fight-or-flight response” and is “helpless to respond” (Saxe et al., 2005, p. 1301). This reasoning is similar to Kaplow and colleagues (2005) in that both suggest their results are evidence of two biobehavioral systems: (1) anxiety/arousal symptoms as phenotype of the sympathetically mediated fight-or-flight response, and (2) dissociative symptoms as phenotype of the parasympathetically mediated immobilization or freezing response (Saxe et al., 2005). Both of these studies also conclude that the dissociative
response occurs after the fight-or-flight response is exhausted (Saxe et al., 2005). “It may be that situations of extreme life threat lead to the parasympathetically mediated shutting down of emotional responses, phenotypically observed as dissociative symptoms and prospectively related to PTSD” (p. 1302).

Interestingly, both studies report similar findings and interpretations of their findings despite using samples with two different types of trauma—child sexual abuse and acute burn victims. This indicates that children’s response to different types of trauma, in light of biobehavioral theory, may be more universal than previously thought. In fact, Saxe and colleagues (2005) observe that all trauma shares an interpersonal component, as is shown in the importance of the relationship of separation anxiety to burn trauma.

Although most research to date focuses on dissociation as a pathological symptom, both modern theory and empirical data suggest that dissociation can also serve a defensive and adaptive purpose. Putnam (1997) classifies three defensive functions of dissociation including: (1) automatization of behavior, (2) compartmentalization of information and affect, and (3) alteration of identity and estrangement from self. He suggests that these three defensive processes can act both independently and, during acute trauma, simultaneously in order to reduce extreme psychological and physical pain.

The first of these processes, automatization, occurs when conscious awareness is redirected away from a repetitive or procedural activity, such as driving (Putnam, 1997). Dissociating while driving, suddenly realizing they did not remember what happened during all or part of the trip, occurs approximately 20% of the time among individuals in
the general population (Putnam, 1997). Some attentional resources shift from the boring procedural activity to a more mentally stimulating or demanding activity and then full attention returns to the procedural activity when necessary. Studies of divided attention suggest that these attentional shifts can reduce the efficiency and increase the error rate of tasks such as driving (Putnam, 1997). However, theory suggests that automatization can be an adaptive response in children who have been exposed to repetitive trauma, such as physical or sexual abuse. In these cases, automatization of repeated behaviors that cause pain or distress provides the child “a psychological way of complying with the demands of the perpetrator without the child having to be fully aware of what is happening or what the child is doing” (p. 70).

The second defensive process is compartmentalization, which is defined as “the separation of areas of awareness and memory from each other” or “a failure of integration of experience and knowledge” (Putnam, 1997, p. 71). Two common types of compartmentalization, state- and context-dependent, have been found to affect normal learning and memory retrieval. Research in neuropsychology and psychopharmacology consistently produce evidence that information learned (or encoded) in one state or context is more easily or readily retrieved in the same state or context (Hasselmo & Eichenbaum, 2005; Weissenborn & Duka, 2000). In cases of trauma, dissociative-state-dependent compartmentalization defends against the integration of overwhelming affect and memory and other information (Putnam, 1997). Keeping traumatic affect and memory separate soothes painful cognitive dissonance such that “a child can both know that he or she is being terribly maltreated by a parent and can simultaneously idealize that
parent” (p. 71). Intrusive memories and flashbacks can result from dysfunctional compartmentalization, which has failed to keep traumatic memories from disrupting an individual’s normal awareness (Holmes et al., 2005; Putnam, 1997). When an individual is either exposed to trauma-related triggers, is in a less externally stimulating environment (i.e., lying in bed at night), or addresses the traumatic memories in therapy, the dissociative-state-dependent compartmentalized memories are described clinically as unprocessed and as if the event just happened or is happening as compared to normal memory recall (Putnam, 1997).

The third defensive process, alteration of identity and estrangement from self, including depersonalization and detachment, is a common central feature of the pathological dissociative disorders (Holmes et al., 2005). Depersonalization, detachment from one’s self and mental processes, and other forms of identity alteration are used defensively to avoid processing and integrating psychologically overwhelming experiences. Again, these alterations can range from time-limited, such as in Dissociative Amnesia and Dissociative Fugue, to persistent, such as in the development of alter personality states in Dissociative Identity Disorder (Putnam, 1997).

The Relationship Between Dissociation and Posttraumatic Stress

Pathological dissociation and Posttraumatic Stress Disorder are related but not synonymous. Several studies have reported that PTSD patients obtain higher scores on dissociation measures as compared to other patients (Putnam, 1997) and more recent studies have shown that peritraumatic dissociation can predict the later development of PTSD (Ehlers, Mayou, & Bryant, 2003; Kaplow et al., 2005; Saxe et al., 2005). These
findings suggest that a correlation exists between PTSD and dissociation, but they do not explain how the constructs are related, if one unequivocally “causes” the other, or if a third variable, such as trauma, is responsible for both. “It has been theorized that dissociative responses may prevent the open expression of emotions and cognitions associated with the trauma, which is likely to lead to insufficient processing of the trauma, more reexperiencing symptoms, and consequently, worse PTSD symptoms” (Kaplow et al., 2005, p. 1308). Other research with PTSD patients has reported two distinct groups, those who scored only slightly higher than average on the DES and those with very high scores on the DES, suggesting that dissociation may be a factor in distinguishing among different symptom presentations of PTSD (Putnam, 1997). Part of the confusion surrounding the issue of how dissociation and PTSD are related to one another is due to inconsistent definitions of dissociation in both classification systems such as the DSM and as operationalized in PTSD research (Holmes et al., 2005). According to the DSM, dissociation is not one of the three main clusters of symptoms required for a diagnosis of PTSD (reexperiencing, avoidance/numbing, and arousal) and dissociative symptoms are not even a necessary criterion for the diagnosis. Nonetheless, research has continually demonstrated a relationship between PTSD and dissociative symptoms, oftentimes variably defining the term dissociation to encompass a variety of different types of trauma-related symptoms (Holmes et al., 2005). Future research is needed to more fully understand both dissociative experiences and PTSD and particularly how they are related to one another. At the current time, the dearth of research on
dissociation and PTSD in children and adolescents leaves no alternative but to speculate from the adult literature.

A number of studies have examined the relationship between dissociative symptoms in adulthood and a history of childhood abuse (Egeland & Susman-Stillman, 1996; Narang & Contreras, 2000). One of the earliest studies to investigate this relationship sought to add empirical validity to the long-standing theoretical belief that child abuse is cyclical and transmitted across generations (Egeland & Susman-Stillman, 1996). In an attempt to distinguish among adults who were abused and are abusing their own children and the 2/3 of adults who were abused and are able to break the cycle, authors reported DES scores that were twice as high for impoverished mothers who continued the abuse cycle as compared to impoverished mothers who did not abuse their children (Egeland & Susman-Stillman, 1996). This study identifies dissociation as a potentially important mechanism in the relationship between childhood abuse history and continued intergenerational cycle of abuse; however, due to its small sample size, it lacks direct analysis of dissociation as a mediator and there is no measure of dissociative experiences during childhood. Another study directly indicated level of dissociation as a significant mediator of the relation between physical abuse history and physical abuse potential among 141 college students who reported having experienced at least one physically abusive event during childhood (Narang & Contreras, 2000). In fact, authors reported that dissociation accounted for approximately half of the observed relation between history of abuse and abuse potential (Narang & Contreras, 2000). While this study utilizes more sophisticated empirical analysis, like the previous study it relies on
retrospective self-reporting of abuse during childhood. When investigating
dissociative experiences, the caveats of retrospective and self-reporting are particularly
problematic as dissociative symptoms are marked by faulty integration of memory and
experience of abusive experiences. It could be that the very individuals who experience
the most significant dissociative symptoms are unable to accurately access those
experiences in order to self-report them. In addition, both of these studies were
conducted with adults reflecting on childhood, not directly assessing children or
adolescents themselves, which fails to capture the unique perspective of children and
adolescents.

Further studies have begun to show that symptoms of posttraumatic stress (PTS),
and specifically dissociative symptoms, may play a mediational role in the relationship
between violence exposure and depressive outcomes in urban adolescents. Typically,
studies that assess PTS in children use the total score of measures that contain subscales
for different PTS symptoms, such as dissociation (Strand, Sarmiento, & Pasquale, 2005).
For example, if the total score of the TSCC is used in a mediational analysis of PTS, it is
unclear which symptom subscales account for the effect and it remains unknown whether
or not it is dissociation that is a significant mediator. Early studies support the idea that
PTS, and implicitly dissociation, may mediate the relation between trauma and other
outcomes. However, dissociation has not been studied directly as it will be in the current
study. Giaconia and colleagues (1995), in their study of PTS and trauma in a working-
class community sample of older, white, adolescents, reported that more than 40% of
adolescents with PTSD met criteria for major depression by age 18, compared with fewer
than 8% of their peers. Furthermore, PTSD preceded or emerged simultaneously with major depression in 70% of cases of adolescents with both disorders (Giaconia, Reinherz, Silverman, Pakiz, Frost, & Cohen, 1995). Authors acknowledge that their results cannot prove that PTSD caused the subsequent depression, however, these findings “strongly suggest that depression was less likely to be a predisposing risk for the development of PTSD, but more of a concomitant or consequence of PTSD” (p. 1378). This study shares a similar caveat of others in its reliance on retrospective self-reports, however, it could be argued that recall at age 18 may be less subject to error than lengthier periods of time between experience and recall in older adults. Although the results of this study provided preliminary evidence for the role of PTSD as a mediator of depression, the retrospective, cross-sectional design does not allow for causative or mediational statements to be made. Additionally, results from a predominantly white, working class, nonurban, sample of 18 year old adolescents cannot be generalized to more racially and economically diverse groups or to younger children. Mazza and Reynolds (1999) reported, in their sample of urban, predominantly African-American and Hispanic, young adolescents, that PTSD symptomatology demonstrated a significant mediational effect in the relationship between violence exposure and depression and suicidal ideation. This finding suggests that symptoms of PTS, resulting from exposure to violence, occur first and then secondarily cause elevated levels of depressive symptoms. What is not clear from this study, however, is whether dissociative symptoms were assessed as part of PTS symptoms and therefore were also part of the mediational effect. Authors assessed adolescents’ PTS symptoms during the past six months using the Posttraumatic Stress
Disorder Subscale of the Adolescent Psychopathology Scale (APS-PTS; Reynolds, 1998) consisting of 12 self-report items which load onto the following three factors: (1) increased arousal, difficulty concentrating, and poor affect, (2) experiencing negative events, and (3) sleep difficulty. Arguably a few of the 12 items may have measured dissociative experiences, however, this study, like its predecessors, provided no direct assessment of the adolescents’ dissociative symptoms and data analyses did not include an investigation of dissociation, specifically, as a mediator of violence exposure and depressive symptoms. This study provides initial evidence that, for young adolescents exposed to violence, general PTSD symptomatology is not only a result of trauma, but acts as the mechanism through which trauma influences symptoms of depression.

Building off of past research and extending the analysis of PTS symptoms to explicitly include dissociation, authors investigated specific subscales of a measure of trauma symptoms, including a dissociation subscale, in a sample of 320 urban young African-American adolescents exposed to violence (Kohl, Gross, & Richards, Manuscript in preparation). PTS symptoms in 7th grade boys and girls significantly mediated the relation between witnessing community violence in 6th grade (aged 12) and depressive symptoms in 7th grade, even after controlling for 6th grade levels of PTS symptoms and depressive symptoms. While previous studies were suggestive of a mediating role for PTS symptoms, this study was the first to report a significant longitudinal relationship from 6th to 7th grade and with an urban, African-American young adolescent sample. Furthermore, when individual subscales of the Trauma Symptom Questionnaire were analyzed, dissociative symptoms in 7th grade boys and girls mediated the relation
between witnessing community violence in 6th grade and depressive symptoms in 7th grade, while controlling for 6th grade levels of dissociative symptoms and depressive symptoms. This finding is particularly relevant to understanding how specific types of trauma symptoms act as mediators in the relationship between witnessing community violence and later depressive symptoms.

In light of the existing theories of how children’s dissociative experiences move from adaptive to pathological (Kruczek, Vitanza, & Salsman, 2008; Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997), it would make sense that children raised in violent communities may benefit from dissociative coping in order to defend against the trauma. However, reliance on pathological dissociation, at the expense of positive coping, or without addressing the underlying trauma, may lead to an exhaustion of resources and depressive symptoms. Even though the longitudinal design of this study allowed for more definitive statement to be made about dissociation as a significant mediator of depressive symptoms after witnessing community violence, it lacked a comprehensive assessment of dissociative symptoms as the dissociative subscale used for analyses consisted of only five items. Had a more thorough measure of children’s dissociative experiences, such as the Children’s Dissociative Checklist, been used, then researchers could have examined different types of dissociative experiences ranging from normal to pathological and could have analyzed items or groups of items to gain a more specific understanding of how relevant different types of dissociative experiences are to the development of depressive symptoms.
The difficulty in recognizing and understanding dissociative symptoms as dissociative, in both clinical work and academic research, has been longstanding in adults, and is especially problematic in children. In a review paper, Holmes and colleagues (2005) note the research on the dissociative symptoms of depersonalization and derealization which has identified descriptions of these symptoms in almost all clinical disorders, including agoraphobia, panic disorder, obsessive-compulsive disorder, eating disorders, unipolar depression, bipolar depression, the psychoses, and personality disorders. Either these two dissociative symptoms are ubiquitous to most pathological conditions in adults, or there is an error in defining and recognizing depersonalization and derealization symptoms. Authors further discuss the confusion over the meaning of dissociation and conclude that there are two separate processes, detachment, which includes depersonalization and derealization as the result of an altered state of consciousness typified by separation, and compartmentalization, in which actions or cognitive processes are inaccessible to control and “the affected processes or information remain intact within the cognitive system despite being inaccessible” (Holmes et al., 2005). While in their review of 70 studies, the authors highlight a clear distinction between detachment and compartmentalization, they acknowledge that, although rarely, these two processes can co-occur, and differentiating between the two can be especially complicated in PTSD (Holmes et al., 2005). Traumatic memory deficits, which are common in cases of PTSD, are not yet understood or agreed upon as symptoms of avoidance, amnesia, detachment, and/or compartmentalization (Holmes et al., 2005). Thus, despite a strong argument, across numerous studies and a variety of different
disorders, for the conceptualization of dissociation as two separate processes: (1) detachment and (2) compartmentalization, this conceptualization does not hold for PTSD. Considering the long-standing relationship between trauma and dissociation and dissociation and PTSD, it is discouraging that the most current and cumulative model of the conceptualization of dissociation does not fit well with cases of PTSD. This suggests that more research needs to be done on all ages in order to capture how dissociation is related to trauma and PTSD, but even less is known about these associations in children and adolescents.

Not only are dissociative symptoms frequently reported in a wide range of pathological conditions, but also numerous sources are reporting the presence of dissociative experiences in normal adults and in positive psychology. The DSM discusses the normality of dissociative experiences as “a common and accepted expression of cultural activities or religious experience in many societies” and notes that they are not considered pathological as they “do not lead to significant distress, impairment, or help-seeking behavior” (APA, 2000, p. 519). In a review article on the topic of evaluation of dissociation across the lifespan, Cardeña and Weiner (2004) emphasize that dissociative experiences “are only maladaptive when they become chronic, recurrent, and uncontrollable and when they produce dysfunction and/or distress” (p. 497). Research with adolescents in positive psychology has examined states of engagement such as absorption and flow, which are positively related to immersion in activities (Schmidt, Shernoff, & Csikszentmihalyi, 2007).
For children and adolescents, identifying dissociative symptoms, and comprehending the role dissociation plays in the relation between trauma and pathological outcomes, requires careful consideration from a developmental perspective, of differential diagnosis to avoid inaccurate assessment. Largely due to the deficiencies of classification systems used to diagnosis children and lack of research or clinical consensus about how to identify dissociative symptomatology in children and adolescents, dissociative symptoms are often misdiagnosed as other symptoms of other disorders. It is not inconceivable that symptoms such as being in a daze, daydreaming, and amnesia could be misconstrued for symptoms of inattention or that symptoms of hyperarousal or hypervigilance could be mistaken for symptoms of hyperactivity. If dissociative symptoms in children are misinterpreted by clinicians, as they often are by parents and teachers, then inaccurate diagnosis could result, and subsequently, inappropriate treatment.

A recent study adds empirical evidence to this issue of misdiagnosis. Copeland, Keeler, Angold, and Costello (2007) used a structured diagnostic interview with both child and parent versions to assess a representative western North Carolina population sample of 1,420 children ages 9, 11, or 13 at intake and followed up annually through age 16, and their parents. Researchers found that more than 2/3 of the children experienced at least one traumatic event by the age of 16, including 37% experiencing multiple events. Contrary to expectations, among children exposed to trauma, less than 0.5% met criteria for PTSD and rates of subclinical PTSD were only slightly more common at 2.2% (Copeland et al., 2007). However, rates of other psychiatric disorders were almost
double the rates of children not exposed, and the highest rates were for the anxiety and depressive disorders and specifically Depressive disorder NOS and Generalized Anxiety disorder (Copeland et al., 2007). Rates of PTS symptoms increased with the number of traumatic events experienced and higher levels of PTS symptoms were related to higher levels of psychiatric disorders (Copeland et al., 2007). These findings suggest that children who are exposed to multiple traumas experience more PTS symptoms, but not necessarily PTSD, and instead are likely to be diagnosed with another psychiatric disorder, such as an anxiety or depressive disorder.

It may be that children’s symptoms are being misdiagnosed as indicative of other disorders, when they are, in actuality, symptoms of PTSD. Alternatively, it could be that children’s response to multiple traumatic events is not well conceptualized and PTSD, as defined by the adult-based DSM-IV criteria, is not the disorder that best fits trauma exposure in children (Cohen, 1998). The children in this sample are exhibiting a wide variety of responses to trauma; yet, clinically the only DSM-IV diagnosis available for symptoms of trauma lasting longer than a month is PTSD. If children don’t meet criteria for PTSD, then they may be given a different diagnosis and their symptoms and treatment may be viewed through the lens of that different diagnosis. If not enough to warrant a diagnosis of PTSD, for example, symptoms of avoidance, numbing, or dissociation may be viewed as depressive symptoms in the context of a diagnosis of Depressive disorder NOS, such as diminished interest in activities, feeling empty or diminished ability to concentrate. Furthermore, a diagnosis of Generalized Anxiety disorder necessitates excessive anxiety and worry that is difficult to control in addition to, for children, only
one symptom among six which include difficulty concentrating or mind going blank, and sleep disturbance, each of which could be a dissociative symptom (APA, 2000). Effective treatments for trauma, anxiety, and depressive disorders are different for each disorder, and treating children for anxiety or depression, without addressing underlying trauma or dissociative symptoms, may interfere with treatment progress. Hence, trauma in children and adolescents leads to many different outcomes, dissociation being one that is largely overlooked and understudied, and PTSD being one that is more rare than previously accepted and overemphasized in the DSM. Moreover, empirical evidence supports many other responses to trauma in children and adolescents.

Dissociation may be a pathway to outcomes other than depression, anxiety, and PTSD, in children exposed to trauma. Kaplow, Hall, Koenen, Dodge, & Amaya-Jackson (2008) reported one direct pathway from higher levels of dissociation to attention problems. The finding that PTSD was only indirectly related to later attention problems through its relationship with dissociation supports the importance of the role of dissociation as a separate response to trauma that is independent of PTSD criteria. Authors suggest that among children who exhibit posttraumatic stress symptoms, those with higher levels of dissociative symptoms may be more likely to develop attention problems (Kaplow et al., 2008). This study lends strength to the argument that dissociation is a separate and core construct of PTSD which (independently serves as a pathway to) or is particularly relevant to later symptoms of inattention. Considering that attention problems are more likely to be noticed by teachers and parents, and thus more often lead to referrals, than dissociative symptoms, clinicians may be more likely to
evaluate and diagnose a child with attention problems with ADHD and miss the children with dissociative symptoms and presence of posttraumatic stress. Furthermore, if dissociative symptoms lead to symptoms of inattention, contact with mental health professionals is likely to occur after the inattentive symptoms lead to referral and a misdiagnosis of ADHD could lead to inappropriate treatment for trauma and dissociation, such as stimulant medication. This could explain part of the reason some stimulant medications used in the treatment of ADHD are ineffective, or worsen symptoms, for some children, and emphasizes the importance of assessment of dissociative symptoms and trauma history.

Assessment of Dissociation

After a period of stagnation during the early and mid 20th century, empirical research using valid and reliable assessment measures has fueled a renewed interest in dissociation in the past 25 years (Cardeña & Weiner, 2004). In trauma cases, dissociative symptoms are often overlooked by the clinician focused on more traditional symptoms of PTSD (i.e., reexperiencing, avoidance, and hyperarousal) and patients may be hesitant or unable to present dissociative symptoms initially (Cardeña & Weiner, 2004). However, the majority of people exposed to trauma experience some level of dissociative symptoms. This necessitates an understanding of the dissociation concept and knowledge of how to conduct a thorough assessment for clinicians working with patients exposed to trauma (Cardeña & Weiner, 2004). For adults, there are two well-researched structured interviews, the Structured Clinical Interview for the Dissociative Disorders (SCID-D) and the Dissociative Disorders Interview Schedule (DDIS), and one less methodically studied
semistructured interview useful for its descriptive qualities (Cardeña & Weiner, 2004; Loewenstein, 1991). There are also a number of questionnaires developed for adults, including, the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986; DES-T; Waller, Putnam, & Carlson, 1996), the Curious Experiences Survey (CES; Goldberg, 1999), Scale of Dissociative Activities (SODAS; Mayer & Farmer, 2003), Dissociation Experiences Questionnaire (DIS-Q; Vanderlinden, Van Dyck, Vandereycken, Vertommen, & Verkes, 1993), Questionnaire of Experiences of Dissociation (QED; Riley, 1988), General Dissociation Scale (GDS; Sapp & Hitchcock, 2001), Multiscale Dissociation Inventory (MDI; Briere, Weathers, & Runtz, in press), and the Multidimensional Inventory of Dissociation (MID; Dell, 2002) (Cardeña & Weiner, 2004). Authors also listed a variety of questionnaires assessing dissociation that are based on other measures, such as, the Perceptual Alteration Scale (PAS; Sanders, 1986), Phillips Dissociation Scale (PDS; Phillips, 1994), North Carolina Dissociation Index (NCDI; Mann, 1995), based on the MMPI as well as other scales of the MMPI which correlate with dissociation, indexes of the Symptom Checklist 90-Revised (SCL-90-R), scales of the Millon Clinical Multiaxial Inventory-III (MCMI-III; Allen, Coyne, & Console, 1997), variations in WAIS-R scores, selected Rorschach plates (Armstrong & Loewenstein, 1990), qualities of Thematic Apperception Test (TAT) responses (Pica, Beere, Lovinger, & Dush, 2001), responses on the Diagnostic Drawing Series (DDS; Fowler & Ardon, 2002), and more commonly used, the dissociation scale of the Trauma Symptom Checklist (TSC; Briere & Runtz, 1989) (Cardeña & Weiner, 2004).
Questionnaires and interviews have also been developed to evaluate acute stress disorder ASD, which requires dissociative symptoms for a diagnosis, and state dissociation (Cardeña & Weiner, 2004). These consist of the Stanford Acute Stress Reaction Questionnaire (SASRQ; Cardeña & Spiegel, 1993), an interview to evaluate ASD and self-report form of the same by Bryant, Harvey, Dang, and Sackville (1998), the Peritraumatic Dissociation Questionnaire (PDQ; Marmar, Weiss, & Metzler, 1998), Clinician-Administered Dissociative States Scale (CADSS; Bremner et al., 1998), State Scale of Dissociation (SSD; Kruger & Mace, 2002) (Cardeña & Weiner, 2004).

In addition to these, several questionnaires were designed specifically to assess the dissociative symptoms of derealization and depersonalization (Cardeña & Weiner, 2004). These are the Depersonalization-Derealization Inventory (Cox & Swinson, 2002), Cambridge Depersonalization Scale (Sierra & Berrios, 2000), Dixon’s Depersonalization Questionnaire (DDQ), Depersonalization Scale (JDS; Jacobs & Bovasso, 1992), a 6-item scale for clinician’s evaluation of depersonalization by Simeon, Guralnik, and Schmeidler (2001), and an Internet depersonalization questionnaire by Steinberg (www.strangerinthemirror.com/questionnaire.html) (Cardeña & Weiner, 2004). The increasing amount of newly developed assessment tools created for the measurement of dissociation in adults in the past ten years substantiates a burgeoning awareness of the relevance of dissociation in understanding psychopathology and, particularly, in cases of trauma.

For children and adolescents, the assessment of dissociation has a unique set of challenges to consider, such as, “limitations in communication, variations according to
cognitive and developmental stage, and phenomena that are unusual in adults but not in children (e.g., imaginary companions)” (Cardeña & Weiner, 2004, p. 502). During infancy, the assessment of dissociation is restricted to behavioral observations, and specifically, attachment style as measured through the Strange Situation Test of Ainsworth (Ainsworth et al., 1978). Longitudinal analyses have shown both an avoidant and a disorganized attachment style at one year predicts dissociation later in life (Ogawa et al., 1997). Disorganized attachment oftentimes results from environmental factors such as neglect, physical/sexual abuse, or other trauma, and can serve as a means of assessing the beginnings of dissociation in infancy (Cardeña & Weiner, 2004).

In childhood, checklists completed by parents, teachers, or clinicians in regard to a child’s behaviors primarily subsume dissociation assessment. Measures designed specifically for a comprehensive evaluation of children’s dissociative experiences include, the Child Dissociative Checklist (CDC; Putnam, 1993) and the less commonly used Children’s Perceptual Alteration Scale (C-PAS; Evers-Szostak & Sanders, 1992). In addition to those two questionnaires there is one semi-structured interview, the Bellevue Dissociative Disorders Interview for Children (BDDI-C; D. O. Lewis, 1996), and one interview in development but without reported psychometric properties, the Kiddie Dissociative Disorder Interview (KDD-C; Chaffin, Lawson, Selby, & Wherry, 1997). More imprecise measurements of dissociation in children have been drawn from compilations of a few dissociation items within general checklists, such as the widely used Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983), and the Child Schedule of the Affective Disorders and Schizophrenia (K-SADS; Ogawa et al., 1997).
Other suggested methods for the evaluation of dissociation in children include analysis of narratives, sentence completion tasks, drawings and writings from diaries, test batteries including the Wechsler intelligence test, the Rorschach, the TAT, a sentence completion test, and drawings (Cardeña & Weiner, 2004). While these methods may have clinical utility for identifying dissociative processes in children, they are difficult to operationalize for research purposes making the investigation of their validity and reliability difficult at best. At this point, the CDC is the most widely used and researched assessment tool available for a comprehensive evaluation of dissociation in children, however, it is not without caveats, including an inability to provide specific diagnoses and reliance on only parent/other report. With only one established questionnaire dedicated to the assessment of dissociative experiences in childhood, out of only seemingly two that have been developed thus far, and one semi-structured interview, with reported psychometric properties, it is not surprising that wide-spread research on dissociation in children has been scant.

Compared to the adult measures, the child measures are far fewer and oftentimes are gathered from either (1) groupings of single items on general checklists to form rough dissociation “scales”, or (2) batteries of tests comprised of objective intelligence tests and subjective projective personality measures, both of which were not designed to assess dissociation. These assessment methods draw into question the available research on dissociation in childhood and leave clinicians with limited tools to use in practice. The lack of a self-report questionnaire for children’s dissociative experiences is particularly precarious considering the importance of directly asking the child about trauma-related
symptoms, which the child is unlikely to report if not asked (Cohen, 1998). There are more measures available to assess posttraumatic stress symptoms in children and some of these include a dissociation subscale or items assessing dissociation (Cardeña & Weiner, 2004). These include, the Child Stress Disorders Checklist (Saxe et al., 2003), the Acute Stress Checklist for Children (ASC-K; Kassam-Adams, in press), The Trauma Symptom Checklist for Children (TSCC; Briere, 1996), UCLA PTSD Index (Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998) and others (Strand, 2005).

However, as has been mentioned throughout, dissociation and posttraumatic stress are not synonymous and symptoms of dissociation measured at the time of trauma or shortly after are predictive of later symptoms of posttraumatic stress. Thus, the need for thorough assessment measures specific to the construct of dissociation is imperative to aid in prevention and intervention of posttraumatic stress symptoms as well as diagnosis and treatment in general. Measures should be designed specifically for children and subjected to repeated research demonstrating both good psychometric properties and clinical utility.

Adolescence

In the study of trauma and dissociation, it is important to distinguish adolescence as a developmental period that is distinct from childhood and marked by its own unique challenges and developmental considerations. “Adolescence was a strong predictor of both painful recall and subclinical PTSD, controlling for other predictor variables” (Copeland et al., 2007, p. 580). Other researchers have investigated relations between dissociative experiences, symptoms of borderline personality disorder, and marijuana use.
in 18-year-old French adolescents in high school (Chabrol, Rodgers, & Duconge, 2005). While the authors acknowledge that their study is cross-sectional and causal statements cannot be made from their correlational findings, they did report significant links between frequent dissociative experiences of spontaneous absorption and imaginative involvement and limited frequency of marijuana use.

Despite the recognition of adolescence as a distinct developmental period with cognitive, social, and emotional changes that are unique from both childhood and adulthood, the number of measures designed to assess dissociation in adolescents is even fewer than in children. Frequently adult measures are used with adolescents, but often without being validated on adolescents (Cardeña & Weiner, 2004). The adolescent measures include the Adolescent Dissociative Experiences Scale (A-DES; Armstrong, Putnam, Carlson, Libero, & Smith, 1997) and the Child/Adolescent Dissociation Checklist (CADC; Reagor, Kasten, & Morelli, 1992), which shares many items with the CDC. There is one study utilizing a modified version of the SASRQ with adolescents to assess acute PTSD and dissociative reactions post 9/11 (Cardeña, Dennis, Winkel, & Skitka, 2005).

Of the measures available to assess dissociation in children and adolescents, the CDC and A-DES are widely used and have demonstrated good psychometric properties in empirical studies; however, the existence of one established measure for children and one for adolescents is insufficient. While a thorough assessment involves many different tools of measurement, including clinical observations, teacher and parent report, and interviews, questionnaires are particularly well-suited for research and are increasingly
necessary in clinical settings where managed care demands the kind of quantitative
treatment results that are easily monitored through questionnaires. The use of multiple
measures of dissociation would improve construct validity and allow for more empirical
research of this construct in children and adolescents. Additionally, none of the measures
has had widespread clinical use, and until further research is done, the ecological validity
of the current assessment methods is questionable. Particularly in clinical settings where
symptoms of trauma are common presenting problems for children and adolescents, a
measure that is both effective and efficacious is essential for accurate diagnosis,
treatment planning, and quantitative evaluation of therapeutic progress.

Research Questions

This study seeks to explore the relationship between trauma, dissociation, and
posttraumatic stress in a clinic-referred sample of children and adolescents living in urban
poverty. Trauma will be investigated broadly, including a range of traumatic
experiences, with particular attention given to different types, frequency, and complexity
of trauma which are divided into five different independent variables. Dissociation will
be investigated as a mediator, or mechanism of the relationship between trauma and
posttraumatic stress symptoms, as well as other outcomes. Internalizing symptoms
(depression, anxiety) and externalizing symptoms (ADHD, CD) as assessed by parent
and child report, will also be investigated as outcomes. Age, gender, and adverse
experiences will be investigated as moderators of the mediated relation.
Hypotheses

Hypothesis 1: Various aspects of trauma will be significantly related to posttraumatic stress.

1A) All three types of trauma (Interpersonal/Community Violence/Nonviolent Trauma) will be significantly positively related to posttraumatic stress symptoms.

1B) Greater frequency (number of occurrences) of trauma will be significantly positively related to worse symptoms.

1C) Complexity (Interpersonal type/Chronic/Early onset prior to age 6) of trauma will be significantly positively related to worse symptoms.

1D) Poly-Exposure (number of different types of trauma) will be significantly positively related to posttraumatic stress symptoms.

1E) Severity (number of occurrences and number of different types of trauma) will be significantly positively related to posttraumatic stress symptoms.

1F) Exploratory analyses will investigate which types of trauma are significantly positively related to two other outcomes (internalizing and externalizing symptoms).

1G) Frequency.

1H) Complexity.

1I) Poly-Exposure.

1J) Severity will be significantly positively related to worse outcomes.

Hypothesis 2: Dissociation will mediate the relations among various aspects of trauma and various outcomes.
2A) Dissociation will mediate the relationship between trauma and posttraumatic stress symptoms.

2B) Dissociation will mediate the relationships between trauma and other outcomes (internalizing and externalizing symptoms).

Hypothesis 3: Adverse experiences, age, and gender will moderate the mediated relations among various aspects of trauma, dissociation, and various outcomes.

3A) Adverse experiences will moderate the mediated relationships among trauma, dissociation and posttraumatic stress symptoms, such that an increased number of adverse experiences (moderator) will strengthen the mediated relationship.

3B) Adverse experiences will moderate the mediated relationships among trauma, dissociation and other outcomes (internalizing and externalizing symptoms), such that an increased number of adverse experiences (moderator) will strengthen the mediated relationship.

3C) Age will be categorized into childhood (ages 7-12) and adolescence (ages 13-17) and exploratory analyses will investigate how age moderates the mediated relationships among trauma, dissociation and outcomes (posttraumatic stress symptoms, internalizing, and externalizing symptoms).

3D) Gender will moderate the mediated relationships among trauma, dissociation and outcomes (posttraumatic stress symptoms, internalizing, and externalizing symptoms), such that for girls, the mediated relationship will be stronger than for boys.
CHAPTER TWO

METHODS

Participants

Participants include children ages 7-17 and their caregivers or guardians, referred for trauma assessment/treatment services at the La Rabida Children’s Hospital – Chicago Child Trauma Center (LRCH-CCTC). The actual number of participants will depend on the number of children who enter the study between its onset, September 2007, and December 2008, at which time data analysis for this project will begin. As of September 2008, the total number of participants aged 3-17 is 160. The sample is predominantly African-American, 76%, 16% Caucasian, and 4% multiracial. There are 90 females and 70 males. The most frequent age at time of assessment and feedback is 11. Forty-five percent of the sample has been sexually victimized or assaulted, 27% has been physically abused, 24% has experienced traumatic loss, 11% has been in a motor vehicle accident, 8% has been burned, 5% has been in a fire, and one child has been attacked by a dog. Including only children 7-17 would bring the total number currently to 119.

Inclusionary criteria are as follows: All children between the ages of 0 and 17 and their guardians/families served through the LRCH-CCTC will be given the opportunity to participate in the larger ongoing data collection. Children, ages 6-17, will be eligible to provide data themselves. For the purposes of this study, data analysis will only include
children ages 7-17, as most of the measures used in this study have normative data for this age range.

There are some children for whom LRCH-CCTC assessment/treatment services are not appropriate despite their trauma history and would be excluded from the research study and treatment services. Specifically, children who are actively suicidal, homicidal, or psychotic require a higher level of treatment capacity than once weekly outpatient treatment and are referred to settings that provide more intensive services. Additionally, children who are deemed “too ill” to participate by their treating physician may be excluded.

Procedure

Data for this project will be derived from the database of an ongoing three-year study at LRCH-CCTC. All children and caregivers seeking services at LRCH-CCTC complete the same assessment measures. The data entered into the database is only of those who consent to participate in research. In this way, completion of assessment materials is part of the standard of care at LRCH-CCTC and those who choose to participate in research are not differentiated from those who decline. Research participants are recruited from the entire pool of referrals received for individuals who are interested in obtaining trauma-focused services. Participants are both self-referred to the LRCH-CCTC, or, more typically, referred from a variety of sources (e.g., pediatricians, Chicago Children’s Advocacy Center, community agencies).

Participants typically speak to an intake worker initially to obtain basic information about the presenting problem, after which time a trained clinician is assigned
the case to evaluate the participants' needs. During this assessment process, the study is described to the family and the consent and assent is distributed and explained to the family by the treating clinician. Participation does not involve any additional interventions from the standard of care that families and children currently receive.

**Measures**

Table 2 *Measures*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Construct</th>
<th>Measure and Informant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent</td>
<td>Trauma Exposure</td>
<td>Traumatic Exposure Checklist (clinician)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UPID (child, parent)</td>
</tr>
<tr>
<td></td>
<td>1) Type</td>
<td>Interpersonal/Community</td>
</tr>
<tr>
<td></td>
<td>2) Frequency</td>
<td>Violence/Nonviolent</td>
</tr>
<tr>
<td></td>
<td>3) Complexity</td>
<td># of occurrences</td>
</tr>
<tr>
<td></td>
<td>4) Poly-Exposure</td>
<td>Interpersonal/Chronic/Onset prior to age 6</td>
</tr>
<tr>
<td></td>
<td>5) Severity</td>
<td># of different types</td>
</tr>
<tr>
<td></td>
<td></td>
<td># of occurrences and # of types</td>
</tr>
<tr>
<td>Mediator</td>
<td>Dissociation</td>
<td>CDES-PTSI (child)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TSCC (child) (Dissociation subscale only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CDC (parent)</td>
</tr>
<tr>
<td>Dependent</td>
<td>Posttraumatic Stress</td>
<td>TSCC (child)(without Dissociation subscale)</td>
</tr>
<tr>
<td></td>
<td>Symptoms</td>
<td>UPID (child, parent)</td>
</tr>
<tr>
<td></td>
<td>PTSD</td>
<td>DICA-IV-M (child)</td>
</tr>
<tr>
<td>Dependent</td>
<td>Internalizing Depression</td>
<td>CBCL (parent)</td>
</tr>
<tr>
<td></td>
<td>Anxiety/Separation Anx.</td>
<td>CDI (child)</td>
</tr>
<tr>
<td></td>
<td>Externalizing</td>
<td>RCMAS (child)/ DICA-IV-M (child)</td>
</tr>
<tr>
<td></td>
<td>ADHD, CD</td>
<td>CBCL (parent)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DICA-IV-M (child)</td>
</tr>
<tr>
<td>Moderators</td>
<td>Adverse Experiences</td>
<td>Traumatic Exposure Checklist (clinician)</td>
</tr>
</tbody>
</table>

CDES-PTSI: Children’s Dissociative Experiences Scale and Posttraumatic Symptom Inventory (Stolbach, 1997, adapted from Bernstein & Putnam, 1986); CDC: Child Dissociative Checklist (Putnam, 1997); TSCC: The Trauma Symptom Checklist for Children (Briere, 1996); UPID: UCLA PTSD Index for DSM-IV- Parent and Child/Adolescent version (Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998); CDI: The Children’s Depression Inventory (Kovacs, 1992); RCMAS: The Revised Children’s Manifest Anxiety Scale (Reynolds & Richmond, 1985); CBCL: Child Behavior Checklist – Parent Form (Achenbach, 1991); DICA-IV-M: Diagnostic Interview for Children and Adolescents (Reich et al., 1997).
Measures Assessing Traumatic Event Exposure

**Traumatic Exposure Checklist for Charts (TEC; LRCH-CCTC, 2006).** The TEC was developed by clinicians at LRCH-CCTC in order to assess traumatic exposures. Clinicians included traumatic exposures that were consistent with the traumatic exposures most commonly experienced by the population served at LRCH-CCTC. Among a broad range of 18 different types of trauma, including a space to specify “other trauma”, clinicians indicate (1) did the event occur as reported by the system, caregiver, or child (yes or no), (2) age(s) of when the event(s) occurred, (3) number of occurrences of the traumatic stressor (e.g., sexually assaulted twice, one dog bite), and (4) is this a chronic event (yes or no determined by repeated exposure, if unable to quantify directly, traumatic stressor is considered chronic if it occurs over time and with much frequency). Clinicians also rate the presence (yes or no) of 10 adverse experiences (e.g., history of impaired caregiver, history of foster placement, including age(s) and number of placements, homelessness). Psychometric properties are not available for this measure as it was developed for the larger study.

Measures Assessing Dissociation

**Children’s Dissociative Experiences Scale and Posttraumatic Symptom Inventory (CDES-PTSI; Stolbach, 1997, adapted from Bernstein & Putnam, 1986).** The CDES-PTSI is a 37-item self-report measure developed to assess dissociative symptoms in children. The measure consists of 21 items intended to reflect dissociative experiences (CDES), 13 items intended to reflect other posttraumatic symptoms (PTSI), and 3 social desirability items (Fake). For each item, the child is presented with two sentences
describing children at either end of a symptom continuum. The child is asked to “check the line” which describes how similar they are to each child, producing a score from zero to three for each item (e.g., “Rachel has a hard time paying attention in class even when she wants to. I’m a lot like Rachel. I’m a little like Rachel. I’m a little like Kim. I’m a lot like Kim. Kim has no trouble paying attention in class when she wants to.”) There are separate versions of the measure for girls and boys. The CDES-PTSI has demonstrated good internal reliability and discriminant validity in a sample of 53 children aged 7 to 12 with diverse maltreatment histories (Stolbach, 1997). Alphas ranged from .75 for the 21-item dissociation scale to .84 for the total 34 symptom items. Children’s scores on the CDES-PTSI were moderately correlated with their scores on established PTSD measures. The CDES-PTSI was able to differentiate traumatized from nontraumatized children. One of the goals of the larger study at LRCH-CCTC is to investigate the psychometric properties of the CDES-PTSI, which is routinely used in the clinical assessment of children at the LRCH-CCTC.

**Child Dissociative Checklist** (CDC; Putnam, 1997). The CDC is a 20-item observer-report checklist with a 3-point scale (0=not true, 1=sometimes true, 2=frequently true). The CDC is a clinical screening instrument that assesses dissociation on the basis of ratings given by caregivers or adults in close contact with the child. A total score of 12 or higher on the CDC is evidence of pathological dissociation. The CDC contains the following scales, Dissociative Amnesia, Rapid Shifts in Demeanor and Abilities, Spontaneous Trance States, Hallucinations, Identity Alterations, and Aggression or Sexualized Behaviors. The CDC shows good 1-year test-retest stability
(r=0.65) and internal consistency (Cronbach’s alpha=0.86) (20). Good convergent and
discriminant validity have been indicated (20).

**Measures Assessing Posttraumatic Stress**

**The Trauma Symptom Checklist for Children** (TSCC; Briere, 1996). The
TSCC is a 54-item self-report instrument designed to evaluate posttraumatic
symptomatology in children and adolescents aged 8-17 years who have been exposed to a
variety of different types of traumas including, child abuse, neglect, interpersonal
violence, witnessing trauma, accidents, and disasters. The scale measures not only
posttraumatic stress but also other symptom clusters found in some traumatized children.
Items are rated according to their frequency using a 4-point scale ranging from 0
(“never”) to 3 (“almost all of the time”). The measure consists of two validity scales,
Underresponse and Hyperresponse, as well as six clinical scales: Anxiety, Depression,
Posttraumatic Stress, Sexual Concerns, Dissociation, and Anger. Two of the clinical
scales have subscales: Sexual Concerns contains Sexual Preoccupation and Sexual
Distress; Dissociation contains Fantasy and Overt Dissociation. The Dissociation scale
will be used independent of the other scales as a measure of dissociation. The
Dissociation scale will be removed from the TSCC when total score is used as a measure
of posttraumatic stress symptoms. Numerous studies have established the reliability of
the TSCC and it has demonstrated both convergent and predictive validity in samples of
traumatized and nontraumatized children and adolescents (Lanktree et al., 2008;
Sadowski & Friedrich, 2000; Singer, Anglin, Song, & Lunghofer, 1995; Wolfe, Wekerle,
Scott, Straatman, & Grasley, 2004).
UCLA PTSD Index for DSM-IV- Parent and Child/Adolescent Version

(UPID; Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998). The UPID is a 48-item semi-structured interview that assesses a child’s exposure to 26 types of traumatic events and assesses DSM-IV PTSD diagnostic criteria. The parent-report version assesses parent’s perception of their child’s trauma exposure and PTSD symptoms. The self-report child/adolescent version was designed for ages 13-18 years. It includes 18 items on the child/adolescent version and 19 items on the parent version to assess for 17 DSM-IV PTSD Criterion B, C, and D symptoms as well as two associated symptoms (guilt and fear of event’s recurring). The measure has three parts. The first part consists of a brief lifetime trauma screen, allowing for categorization of traumatic exposures, including exposure to community violence, natural disaster, medical trauma, and abuse. These exposure items are scored as either present (“yes”) or absent (“no”). If more than one event is selected, the parent or child/adolescent is asked to identify the one currently most bothersome, and a brief summary of the event is recorded. The purpose of this brief review of the traumatic experience is to prepare for the subsequent questions. The second part evaluates the DSM-IV criteria that are features of the traumatic exposure. These items are also scored as present (“yes”) or absent (“no). The third part provides for a thorough evaluation of the frequency of occurrence of posttraumatic stress symptoms during the past month rated on a 5-point Likert scale from 0 (“none of the time”) to 4 (“most all of the time”). The psychometric properties of the UPID have been established in numerous studies across the U.S. and around the world and across a variety of trauma types, age ranges, settings, and cultures (Steinberg, Brymer, Decker & Pynoos, 2004).
**Measures Assessing Other Outcomes**

**The Children’s Depression Inventory** (CDI; Kovacs, 1992). The CDI is a 27-item self-report measure designed to assess depressive symptoms in children and adolescents aged 7-17 years. Items are scored on a scale from 0 to 2, with higher scores indicating higher levels of depressive symptoms. The inventory yields a total score and five subscale scores, including Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia, and Negative Self-Esteem. The CDI has demonstrated adequate internal and test-retest reliability and good concurrent validity (Kovacs, 1992).

**The Revised Children’s Manifest Anxiety Scale** (RCMAS; Reynolds & Richmond, 1985). The RCMAS is a 37-item self-report instrument designed to measure the level and nature of anxiety in children and adolescents aged 6-19 years. Items are scored on a “yes” or “no” scale and comprise a Total Anxiety score, a Lie scale, and three subscales, Physiological Anxiety, Worry-Oversensitivity, Social Concerns-Concentration. The Total Anxiety score is comprised of 28 items and the Lie scale is comprised of nine items. The other three anxiety subscales have demonstrated limited reliability, alphas below .80, and will not be used for analyses. The Total Anxiety score has a mean of 50 and a standard deviation of 10; higher scores indicate higher levels of anxiety. Only the Total Anxiety score will be used for analyses, as it has demonstrated good internal and test-retest reliability (Reynolds & Richmond, 1985). In a sample of 125 sexually abused, 6-18 year old Latina, African-American, and Caucasian females, mean levels of the Total Anxiety score were higher than the nonclinical standardization groups (Mennen, 1994). In an ethnically diverse sample of 32 children living in Hawaii
and exposed to a hurricane, the Total Anxiety score was able to measure significant pretreatment to posttreatment effects (Chemtob, Nakashima, & Carlson, 2002).

**Child Behavior Checklist – Parent Form** (CBCL; Achenbach, 1991). The parent form of the CBCL was developed to assess parents’ perceptions of their children’s competencies and problem behaviors. Two versions of this instrument exist: one for children ages 1 1/2-5 and another for ages 6-18. The following information pertains to the CBCL for children ages 6-18 years. The CBCL consists of two sections, the first includes 20 competence items and the second section includes 120 items on behavior or emotional problems during the past six months. Items are rated on a 3-point Likert scale ranging from 0 “not true”, 1 “somewhat or sometimes true”, and 2 “very or often true”. The CBCL contains numerous subtests and scores, including: Aggressive Behavior, Anxious/Depressed, Attention Problems, Delinquent Rule-Breaking Behavior, Social Problems, Somatic Complaints, Thought Problems, Withdrawn, Externalizing, Internalizing, Total Problems, plus DSM-oriented scales. Only the internalizing and externalizing subscales will be used in this study. The internalizing scale measures symptoms of depression/anxiety, withdrawal, and somatic complaints. The externalizing scale measures symptoms of hyperactivity, delinquency, and aggression. The CBCL has established excellent test-retest reliability, inter-rater reliability, and internal consistency, as well as acceptable criterion validity in samples of children that are culturally and ethnically diverse, urban and rural, and low to high SES.

**Diagnostic Interview for Children** (DICA-IV; Reich et al., 1997). The DICA-IV is a semi-structured diagnostic interview that evaluates the disorders most prevalent in
children and adolescents according to DSM-IV criteria (APA, 1994). It comprises three versions: DICA-C for children aged 6-12, DICA-A for adolescents aged 13-17, and DICA-P for parents of children aged 6-17 years. The LRCH-CCTC, with the permission of the primary author, Wendy Reich, Ph.D., modified selected sections of the DICA-IV for Children and Adolescents in order to streamline the assessment process and to promote ease of use for clinicians and researchers. The revised version, DICA-IV-M, consists of questions that directly coincide with the diagnostic criteria currently employed in the DSM-IV for diagnostic purposes. Of the 28 available diagnostic categories, eight sections of the DICA were modified: ADHD, Conduct Disorder, Major Depressive Episode, Dysthnia, Separation Anxiety, PTSD, and Psychosocial Stressors. Questions that did not directly map on to the diagnostic criteria were removed, some of the existing questions were re-worded to better capture targeted criteria for our purposes, and some of the questions were reordered. Coding sheets were devised to reflect these changes and to facilitate the scoring process. The unmodified DICA has demonstrated satisfactory test-retest reliability for most diagnoses (Reich, Cottler, McCallum, Corwin, & Van Eerdewegh, 1995) and several studies have reported good reliability and moderate to good validity (Weiner et al., 1987) across all diagnostic categories. Psychometric properties are not available for the modified version of this instrument as it was developed for the larger study. Reliability analyses will be examined for this sample.
Data Analytic Strategy

Defining Variables

Trauma will be assessed according to five variables: (1) The Trauma Type variable will be created by combining the different trauma types on the TEC and UPID into three different categories: Interpersonal Trauma (color coded as yellow on TEC in Appendix A), Exposure to Community Violence (color coded as purple on TEC in Appendix A), and Other/Nonviolent Trauma (color coded as blue on TEC in Appendix A). (2) The Frequency variable will be defined as number of occurrences as indicated on the TEC. (3) The Complexity variable will be defined as a combination of one of the Interpersonal Trauma types, of chronic frequency, with onset prior to age 6. (4) The Poly-Exposure variable will be defined as number of different types of trauma. (5) The Severity variable will be defined as a combination of both frequency (number of occurrences) and poly-exposure (number of different types of trauma).

Internalizing symptoms (depression and anxiety) will be assessed using a composite of the parent report, CBCL, and the child reports, CDI and RCMAS, if these measures demonstrate a high correlation with one another. If they do not correlate, as is often the case in studies of parent-child concordance rates on internalizing symptoms, then the child report only will be used, as children are often more accurate reporters of their internalizing symptoms than their parents (Karver, 2006). Externalizing symptoms (ADHD, CD) will be assessed using a composite of the parent report, CBCL, and the child interview, DICA-IV-M, if these measures demonstrate a high correlation with one another. If they do not correlate, as is sometimes the case in studies of parent-child
concordance rates on externalizing symptoms, then the parent report only will be used, as parents are often more accurate reporters of their child’s externalizing symptoms than the children (Karver, 2006).

**Descriptive Statistics**

Preliminary analyses will be conducted to examine the means, standard deviations, and reliability for all study variables. Correlational analyses will be conducted to examine the associations between the independent and dependent variables and the mediator and moderators.

**Regression Analyses**

Variables will be centered in order to reduce multicollinearity between predictors and any interaction terms among them and to avoid the evaluation of one main effect at an extreme value of the other main effect. To address the research questions posed, a series of hierarchical multiple regression analyses will be conducted, examining the predictors (trauma variables-type, frequency, complexity, poly-exposure, severity), mediators (dissociation), and outcomes (posttraumatic stress symptoms, internalizing, and externalizing). It is yet to be determined which variables will be analyzed separately and which together. Gender and age will be included in all regression analyses as control variables entered in Step 1 of the regression model. Each may be explored further as moderators if the variable demonstrates a significant effect in the initial regression analyses. To examine multiple outcomes with multiple predictors, regression equations will be computed in order to find statistically significant mediator effects. A stepwise approach will be used in order of entry, with control variables entered in Step 1, main
effects added in Step 2, mediators added in Step 3. Post-hoc analyses will examine mediational effects using the Sobel test. Adverse experiences will be investigated as moderators of the mediated relation using moderated mediational techniques.
CHAPTER THREE

RESULTS

Analytic Strategy

Preliminary Analyses

Preliminary analyses were conducted to examine the means, standard deviations, range, skewness, and kurtosis for all variables (see Table 3). Correlational analyses were conducted to examine the associations among the variables in order to determine which variables could be combined into composites for use in the regression analyses (see Tables 4 and 5). Prior to creation of composite variables, all mediators and dependent variables were screened for outliers, skewness, kurtosis, and missing values. Skewness and kurtosis were not addressed for the independent variables of trauma exposure because the clinicians’ reports of youths’ trauma exposure were believed to represent the youth’s experiences; in a clinic-referred sample of children and adolescents living in urban poverty, one might not expect trauma exposure to be normally distributed. Therefore, the skewed distribution of the independent variable of trauma was considered to reflect meaningful data about the clinicians’ evaluation of the youths’ traumatic experiences. DICA-Dysthmia displayed a positive kurtosis value of 3.76 which indicates a distribution that is flatter than normal and a positive skewness value of 2.22 which indicates a greater number of smaller values. DICA-Conduct Disorder displayed a positive kurtosis value of 3.58 which indicates a flatter than normal distribution,
however, the skewness value was acceptable at 1.80. All other variables included in the study displayed normal distributions, with no outliers, and no skewness or kurtosis values greater or lesser than +/-2. Due to some cases with missing data points, imputation was considered in order to enhance power in analyses. However, data could not be imputed because most variables were only available as total scores, making item-level imputation impossible.

Table 3 Descriptive Statistics

<table>
<thead>
<tr>
<th>Mediator Variable – Dissociation</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDES (child)</td>
<td>160</td>
<td>22.88</td>
<td>10.24</td>
<td>0-54</td>
<td>.17</td>
<td>-.34</td>
</tr>
<tr>
<td>TSCC-DIS (child)</td>
<td>160</td>
<td>54.25</td>
<td>12.97</td>
<td>35-96</td>
<td>.70</td>
<td>-.22</td>
</tr>
<tr>
<td>CDC (parent)</td>
<td>158</td>
<td>8.08</td>
<td>5.94</td>
<td>0-27</td>
<td>.91</td>
<td>.42</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttraumatic Stress symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSCC- PTS (child)</td>
<td>160</td>
<td>54.04</td>
<td>12.29</td>
<td>33-83</td>
<td>.30</td>
<td>-.73</td>
</tr>
<tr>
<td>UPID-Parent</td>
<td>147</td>
<td>25.59</td>
<td>13.42</td>
<td>0-66</td>
<td>.50</td>
<td>-.08</td>
</tr>
<tr>
<td>UPID-Child</td>
<td>156</td>
<td>28.35</td>
<td>15.79</td>
<td>0-67</td>
<td>.29</td>
<td>-.69</td>
</tr>
<tr>
<td>DICA- PTSD</td>
<td>134</td>
<td>7.80</td>
<td>4.36</td>
<td>0-17</td>
<td>.06</td>
<td>-.74</td>
</tr>
</tbody>
</table>

| Internalizing symptoms           |     |       |                    |       |          |          |
| CBCL-I (parent)                  | 166 | 60.58 | 11.89              | 33-86 | -.17     | -.69     |
| RCMAS (child)                    | 160 | 49.43 | 12.20              | 13-81 | -.17     | .24      |
| DICA- Separation                 | 117 | 2.22  | 2.50               | 0-8   | .86      | -.44     |

| Anxiety                          |     |       |                    |       |          |          |
| CDI (child)                      | 167 | 51.16 | 10.56              | 34-93 | 1.13     | 1.85     |
| DICA- MDD                        | 123 | 2.28  | 2.68               | 0-9   | .71      | -.91     |
| DICA- Dysthymia                  | 113 | .82   | 1.87               | 0-7   | 2.22     | 3.76     |

| Externalizing symptoms           |     |       |                    |       |          |          |
| CBCL-E (parent)                  | 166 | 61.99 | 10.99              | 34-98 | -.14     | .22      |
| DICA- ADHD                       | 135 | 5.81  | 4.81               | 0-18  | .71      | -.45     |
| DICA- Conduct                    | 121 | 1.52  | 1.92               | 0-9   | 1.80     | 3.58     |
Table 3 (continued)

<table>
<thead>
<tr>
<th>Independent Variable (TEC- Trauma) (clinician)</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Victimization</td>
<td>174</td>
<td>.58</td>
<td>.50</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.29</td>
<td>.46</td>
<td>0-1</td>
</tr>
<tr>
<td>Witness sexual violence/victimization</td>
<td>173</td>
<td>.12</td>
<td>.32</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.07</td>
<td>.26</td>
<td>0-1</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>173</td>
<td>.27</td>
<td>.45</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.22</td>
<td>.41</td>
<td>0-1</td>
</tr>
<tr>
<td>Witness Physical Abuse</td>
<td>173</td>
<td>.17</td>
<td>.38</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.13</td>
<td>.33</td>
<td>0-1</td>
</tr>
<tr>
<td>Exposure to Domestic Violence</td>
<td>173</td>
<td>.40</td>
<td>.49</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.31</td>
<td>.47</td>
<td>0-1</td>
</tr>
<tr>
<td>Victim of extrafamilial violent crime</td>
<td>173</td>
<td>.08</td>
<td>.27</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.01</td>
<td>.08</td>
<td>0-1</td>
</tr>
<tr>
<td>Traumatic Loss</td>
<td>173</td>
<td>.30</td>
<td>.46</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.01</td>
<td>.08</td>
<td>0-1</td>
</tr>
<tr>
<td>Witness Community Violence</td>
<td>173</td>
<td>.23</td>
<td>.42</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.12</td>
<td>.33</td>
<td>0-1</td>
</tr>
<tr>
<td>Witness School Violence</td>
<td>172</td>
<td>.06</td>
<td>.25</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.03</td>
<td>.18</td>
<td>0-1</td>
</tr>
<tr>
<td>Abduction</td>
<td>173</td>
<td>.01</td>
<td>.11</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.00</td>
<td>.00</td>
<td>0</td>
</tr>
<tr>
<td>Torture</td>
<td>173</td>
<td>.02</td>
<td>.15</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.01</td>
<td>.11</td>
<td>0</td>
</tr>
<tr>
<td>Witness homicide</td>
<td>173</td>
<td>.06</td>
<td>.23</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.00</td>
<td>.00</td>
<td>0</td>
</tr>
<tr>
<td>Burn</td>
<td>173</td>
<td>.06</td>
<td>.23</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.00</td>
<td>.00</td>
<td>0</td>
</tr>
<tr>
<td>Fire</td>
<td>173</td>
<td>.06</td>
<td>.23</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.00</td>
<td>.00</td>
<td>0</td>
</tr>
<tr>
<td>Motor Vehicle Accident</td>
<td>173</td>
<td>.15</td>
<td>.36</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.00</td>
<td>.00</td>
<td>0</td>
</tr>
<tr>
<td>Dog Attack</td>
<td>173</td>
<td>.01</td>
<td>.11</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.00</td>
<td>.00</td>
<td>0</td>
</tr>
<tr>
<td>Other Medical Trauma</td>
<td>173</td>
<td>.10</td>
<td>.31</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.01</td>
<td>.08</td>
<td>0-1</td>
</tr>
<tr>
<td>Major disaster: result of natural event</td>
<td>173</td>
<td>.01</td>
<td>.08</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.00</td>
<td>.00</td>
<td>0</td>
</tr>
<tr>
<td>Other trauma, not already mentioned</td>
<td>173</td>
<td>.09</td>
<td>.28</td>
<td>0-1</td>
</tr>
<tr>
<td>Is this a chronic event?</td>
<td>176</td>
<td>.01</td>
<td>.08</td>
<td>0-1</td>
</tr>
<tr>
<td>Total types of traumatic stress</td>
<td>173</td>
<td>2.75</td>
<td>1.51</td>
<td>0-7</td>
</tr>
<tr>
<td>Variables</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Maltreatment Type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sexual victimization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Witness sexual victimization</td>
<td>.16*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Physical abuse</td>
<td>-.08</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Witness physical abuse</td>
<td>-.13</td>
<td>.26**</td>
<td>.41**</td>
<td></td>
</tr>
<tr>
<td>5. Exposure to domestic violence</td>
<td>.04</td>
<td>.21**</td>
<td>.32**</td>
<td>.37**</td>
</tr>
<tr>
<td><strong>Community Violence Type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Victim of extrafamilial</td>
<td>-.13</td>
<td>-.11</td>
<td>-.04</td>
<td>-.08</td>
</tr>
<tr>
<td>7. Traumatic loss</td>
<td>-.31**</td>
<td>-.12</td>
<td>-.20**</td>
<td>-.10</td>
</tr>
<tr>
<td>8. Witness community violence</td>
<td>.05</td>
<td>.02</td>
<td>-.06</td>
<td>-.03</td>
</tr>
<tr>
<td>9. Witness school violence</td>
<td>-.12</td>
<td>-.10</td>
<td>.11</td>
<td>.01</td>
</tr>
<tr>
<td>10. Abduction</td>
<td>-.02</td>
<td>-.04</td>
<td>-.07</td>
<td>-.05</td>
</tr>
<tr>
<td>11. Torture</td>
<td>.05</td>
<td>.07</td>
<td>.08</td>
<td>.13</td>
</tr>
<tr>
<td>12. Witnessing homicide</td>
<td>-.24**</td>
<td>-.09</td>
<td>-.10</td>
<td>.02</td>
</tr>
<tr>
<td><strong>Other/Acute Trauma Type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Burn</td>
<td>-.29**</td>
<td>-.09</td>
<td>.07</td>
<td>.08</td>
</tr>
<tr>
<td>14. Fire</td>
<td>-.09</td>
<td>-.09</td>
<td>-.04</td>
<td>.02</td>
</tr>
<tr>
<td>15. Motor vehicle accident</td>
<td>-.30**</td>
<td>-.10</td>
<td>-.15</td>
<td>-.11</td>
</tr>
<tr>
<td>16. Dog attack</td>
<td>-.13</td>
<td>-.04</td>
<td>.18*</td>
<td>-.05</td>
</tr>
<tr>
<td>17. Other medical trauma</td>
<td>-.13</td>
<td>-.01</td>
<td>.05</td>
<td>-.11</td>
</tr>
<tr>
<td>18. Natural disaster</td>
<td>-.09</td>
<td>.21**</td>
<td>-.05</td>
<td>-.04</td>
</tr>
<tr>
<td>19. Other trauma</td>
<td>-.03</td>
<td>-.11</td>
<td>-.00</td>
<td>-.03</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05; **p* < .01
<table>
<thead>
<tr>
<th>Variables</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maltreatment Type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sexual victimization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Witness sexual victimization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Physical abuse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Witness physical abuse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Exposure to domestic violence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Community Violence Type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Victim of extrafamilial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Traumatic loss</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Witness community violence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Witness school violence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Abduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Torture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Witnessing homicide</td>
<td>-0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other/Acute Trauma Type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Burn</td>
<td>0.13</td>
<td>-0.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Fire</td>
<td>0.13</td>
<td>0.05</td>
<td>0.15*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Motor vehicle accident</td>
<td>0.04</td>
<td>-0.04</td>
<td>0.17*</td>
<td>0.17*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Dog attack</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Other medical trauma</td>
<td>-0.05</td>
<td>-0.00</td>
<td>-0.00</td>
<td>0.16*</td>
<td>0.23**</td>
<td>0.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Natural disaster</td>
<td>-0.01</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.02</td>
<td>0.18*</td>
<td>-0.01</td>
<td>-0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Other trauma</td>
<td>-0.05</td>
<td>-0.01</td>
<td>-0.08</td>
<td>0.01</td>
<td>0.10</td>
<td>-0.03</td>
<td>-0.04</td>
<td>-0.02</td>
<td></td>
</tr>
</tbody>
</table>

*Note: *p < .05; **p < .01*
<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dissociation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CDES</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. TSCC-DIS</td>
<td>.65*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. CDC</td>
<td>.03</td>
<td>.15</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Posttraumatic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. TSCC-PTS</td>
<td>.46*</td>
<td>.72*</td>
<td>.11</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. UPID-P</td>
<td>.13</td>
<td>.18*</td>
<td>.43*</td>
<td>.20*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. UPID-C</td>
<td>.50*</td>
<td>.61*</td>
<td>.07</td>
<td>.67*</td>
<td>.21*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. DICA-PTSD</td>
<td>.47*</td>
<td>.44*</td>
<td>.01</td>
<td>.54*</td>
<td>.21*</td>
<td>.71*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internalizing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. CBCL-I</td>
<td>.09</td>
<td>.14</td>
<td>.51*</td>
<td>.25*</td>
<td>.58*</td>
<td>.16*</td>
<td>.19*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. RCMAS</td>
<td>.48*</td>
<td>.51*</td>
<td>-.03</td>
<td>.56*</td>
<td>.09</td>
<td>.54*</td>
<td>.50*</td>
<td>.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. DICA-SAD</td>
<td>.27*</td>
<td>.31*</td>
<td>-.08</td>
<td>.45*</td>
<td>.15</td>
<td>.46*</td>
<td>.46*</td>
<td>.11</td>
<td>.50*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. CDI</td>
<td>.57*</td>
<td>.52*</td>
<td>.10</td>
<td>.47*</td>
<td>.21*</td>
<td>.60*</td>
<td>.51*</td>
<td>.18*</td>
<td>.52*</td>
<td>.38*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. DICA-MDD</td>
<td>.47*</td>
<td>.43*</td>
<td>.02</td>
<td>.43*</td>
<td>.22*</td>
<td>.45*</td>
<td>.49*</td>
<td>.11</td>
<td>.52*</td>
<td>.39*</td>
<td>.56*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. DICA-Dys</td>
<td>.08</td>
<td>.20*</td>
<td>.17</td>
<td>.21</td>
<td>.27*</td>
<td>.17</td>
<td>.27*</td>
<td>.29*</td>
<td>.19*</td>
<td>.25*</td>
<td>.32*</td>
<td>.26*</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Externalizing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. CBCL-E</td>
<td>-.02</td>
<td>.09</td>
<td>.55*</td>
<td>.07</td>
<td>.27*</td>
<td>.06</td>
<td>.03</td>
<td>.49*</td>
<td>-.07</td>
<td>-.03</td>
<td>.10</td>
<td>-.02</td>
<td>.13</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>15. DICA-ADHD</td>
<td>.41*</td>
<td>.38*</td>
<td>.08</td>
<td>.28*</td>
<td>.04</td>
<td>.30*</td>
<td>.23*</td>
<td>-.03</td>
<td>.34*</td>
<td>.28*</td>
<td>.37*</td>
<td>.48*</td>
<td>.13</td>
<td>.10</td>
<td>--</td>
</tr>
<tr>
<td>16. DICA-CD</td>
<td>.11</td>
<td>.16</td>
<td>.17</td>
<td>.12</td>
<td>-.02</td>
<td>.11</td>
<td>.10</td>
<td>.14</td>
<td>.10</td>
<td>.23*</td>
<td>.41*</td>
<td>.33*</td>
<td>.25*</td>
<td>.30*</td>
<td></td>
</tr>
</tbody>
</table>

Composite Variables

Independent Variable Composites

The independent variable of trauma was investigated according to the following four ways: type, chronicity, poly-exposure, and severity. A composite was created for each of the four different aspects of trauma and the process through which each of the final composites was determined will be discussed in turn.

Trauma Type. Trauma type was assessed via the clinician-administered Trauma Exposure Checklist (TEC) (see Appendix A). Nineteen different trauma types were divided into the following final three categories: maltreatment, community violence, and other/acute trauma. All of the 19 types were coded as either 0 for not present or 1 for present. All of the trauma type composites were coded as either 0 for no exposure to any of the trauma types for that category or 1 for exposure to at least one or more of the trauma types for that category. The composites were coded in this way in order to capture the presence of the type of trauma and not an accumulation or count of trauma types as that aspect of trauma exposure was to be assessed by the poly-exposure variable. See Table 6 for reliability of independent variable trauma type composites.

The Maltreatment trauma type was composed of the following five items: (1) sexual victimization, (2) witness sexual victimization, (3) physical abuse, (4) witness physical abuse, and (5) exposure to domestic violence. The Maltreatment trauma type composite yielded an alpha of .47. Initially, in an attempt to increase reliability, the Maltreatment trauma type was further divided into two sub-composites: Sexual Maltreatment type consisting of (1) sexual victimization and (2) witness sexual
victimization, and Non-sexual Maltreatment type, consisting of (3) physical abuse, (4) witness physical abuse, and (5) exposure to domestic violence. The Sexual Maltreatment type sub-composite yielded an alpha of .26 and the Non-sexual Maltreatment type sub-composite yielded an alpha of .65. These sub-composites were not used in final analyses, as the original Maltreatment trauma type was selected for use in final analyses.

The Community Violence trauma type was composed of the following seven items: (6) Victim of extrafamilial violence, (7) traumatic loss, (8) witness community violence, (9) witness school violence, (10) abduction, (11) torture, and (12) witnessing homicide. The Community Violence trauma type composite yielded an alpha of .26. Initially, in order to increase reliability, the Community Violence trauma type was further divided into two sub-composites: Community Violence type A, consisting of (6) Victim of extrafamilial violence, (7) traumatic loss, (8) witness community violence, (9) witness school violence and (12) witnessing homicide, and Community Violence type B, consisting of (10) abduction and (11) torture. The Community Violence type A sub-composite yielded an alpha of .34 and the Community Violence type B sub-composite yielded an alpha of .49. These sub-composites were not used in final analyses, as the original Community Violence trauma type was selected for use in final analyses.

The Other/Acute trauma type was composed of the following seven items: (13) burn, (14) fire, (15) motor vehicle accident, (16) dog attack, (17) other medical trauma, (18) natural disaster, and (19) other trauma. The Other/Acute trauma type composite yielded an alpha of .32. The Other/Acute trauma type composite was not further divided
into sub-composites, as reliability analyses did not indicate an increase in alpha if any one particular item was deleted. The Other/Acute trauma type was used in final analyses.

The three original trauma type composites (Maltreatment type, Community Violence type, and Other/Acute type) and not sub-composites for all three types were used in final regression analyses. These sub-composites were not used in final regression analyses for two reasons: (1) based on correlational analyses indicating no significant differences in relation to the dependent variables between the original type composites and the two further sub-composite divisions of the three original type composites and (2) in the interest of avoiding Type II error by reducing the number of final regression analyses that were run. Given the fact that there is no conceptual reason to expect that exposure to one type of abuse or violence would be related to another, internal consistency is neither expected nor useful for measures of incidents. Thus, the low alphas for the three original composites were of less concern.

**Chronicity.** Chronicity of trauma was assessed via the clinician-administered TEC. For each of the 19 different trauma types, the chronicity was assessed through the item, “Is this a chronic event?” which was coded as 0 for no and 1 for yes. The “Is this a chronic event?” variable was added together for each of the 19 different trauma types to create a sum of chronic events. The sum was then used to create the final Chronicity variable which was coded as 1 for acute or 2 for chronic in at least 1 or more trauma types. The Chronicity variable was coded in this way in order to capture the presence of exposure to *any chronic trauma* and not an accumulation or count of chronic traumas as
that aspect of trauma exposure was to be assessed by the poly-exposure variable. The Chronicity variable was used in final regression analyses.

**Poly-Exposure.** The poly-exposure variable was assessed via the clinician-administered TEC. Poly-Exposure was defined as number of different types and composed of a simple additive count of exposure to the 19 different trauma types, which were coded as either 0 for not present or 1 for present. Poly-Exposure is a continuous variable consisting of a possible range from 0-19. The variable was constructed in this way to investigate the number of different trauma types as independent from type of trauma or chronicity of trauma. Initially, to further investigate number of different types, the poly-exposure variable was divided into the following three categories to create the Poly-Exposure Categories variable, 0 = no trauma, 1 = single-exposure, 2 = low poly-exposure, and 3 = high poly-exposure. However, the Poly-Exposure Categories variable was not used in final regression analyses. Based on correlational analyses, the original continuous Poly-Exposure variable (0-19) was used in final regression analyses as it was more strongly related to the mediator and dependent variables than the Poly-Exposure Categories variable.

**Severity.** The severity variable was assessed via the clinician-administered TEC. Initially, two severity variables were created. Severity 1 consisted of a combination of the Chronicity variable and the Poly-Exposure Categories variable and yielded the following six categories: 1 = acute single-exposure, 2 = acute low poly-exposure, 3 = acute high poly-exposure, 4 = chronic single-exposure, 5 = chronic low poly-exposure, and 6 = chronic high poly-exposure. Severity 2 consisted of a combination of the Chronicity
variable and the Poly-Exposure variable. The Chronicity variable was coded as 1 = acute and 2 = chronic which was then multiplied by the Poly-Exposure variable which was coded as a count of 0-19. Severity 2 was used in final regression analyses as correlational analyses indicated more significant relations between Severity 2 and the mediator and dependent variables. From this point on, the Severity 2 variable will simply be referred to as Severity.

Table 6 Internal Reliability for Independent Variable Trauma Type Composites

<table>
<thead>
<tr>
<th>Final Maltreatment Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sexual Victimization</td>
<td>- .02</td>
<td>.61</td>
<td></td>
</tr>
<tr>
<td>2. Witness sexual victimization</td>
<td>.31</td>
<td>.39</td>
<td></td>
</tr>
<tr>
<td>3. Physical Abuse</td>
<td>.47</td>
<td>.30</td>
<td>.38</td>
</tr>
<tr>
<td>4. Witness physical abuse</td>
<td>.37</td>
<td>.34</td>
<td></td>
</tr>
<tr>
<td>5. Exposure to domestic violence</td>
<td>.39</td>
<td></td>
<td>.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maltreatment Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sexual Victimization</td>
<td>.16</td>
<td></td>
<td>.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maltreatment Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Physical Abuse</td>
<td>.43</td>
<td></td>
<td>.53</td>
</tr>
<tr>
<td>4. Witness physical abuse</td>
<td>.48</td>
<td></td>
<td>.48</td>
</tr>
<tr>
<td>5. Exposure to domestic violence</td>
<td>.65</td>
<td>.41</td>
<td>.57</td>
</tr>
</tbody>
</table>
Table 6 (continued)

<table>
<thead>
<tr>
<th>Final Community Violence Composite</th>
<th>Cronbach’s Alpha $n = 172$</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Victim of extrafamilial violence</td>
<td></td>
<td>.20</td>
<td>.17</td>
</tr>
<tr>
<td>7. Traumatic loss</td>
<td></td>
<td>.17</td>
<td>.17</td>
</tr>
<tr>
<td>8. Witness community violence</td>
<td></td>
<td>.07</td>
<td>.28</td>
</tr>
<tr>
<td>9. Witness school violence</td>
<td></td>
<td>.22</td>
<td>.17</td>
</tr>
<tr>
<td>10. Abduction</td>
<td></td>
<td>-.03</td>
<td>.28</td>
</tr>
<tr>
<td>11. Torture</td>
<td></td>
<td>-.09</td>
<td>.30</td>
</tr>
<tr>
<td>12. Witnessing homicide</td>
<td></td>
<td>.15</td>
<td>.21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Violence Composite</th>
<th>Cronbach’s Alpha $n = 173$</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Abduction</td>
<td></td>
<td>.34</td>
<td>.34</td>
</tr>
<tr>
<td>11. Torture</td>
<td></td>
<td>.34</td>
<td>.34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Violence Composite</th>
<th>Cronbach’s Alpha $n = 172$</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Victim of extrafamilial violence</td>
<td></td>
<td>.21</td>
<td>.26</td>
</tr>
<tr>
<td>7. Traumatic loss</td>
<td></td>
<td>.20</td>
<td>.26</td>
</tr>
<tr>
<td>8. Witness community violence</td>
<td></td>
<td>.34</td>
<td>.26</td>
</tr>
<tr>
<td>9. Witness school violence</td>
<td></td>
<td>.23</td>
<td>.26</td>
</tr>
<tr>
<td>12. Witnessing homicide</td>
<td></td>
<td>.16</td>
<td>.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Other/Acute Trauma Composite</th>
<th>Cronbach’s Alpha $n = 173$</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Burn</td>
<td></td>
<td>.10</td>
<td>.30</td>
</tr>
<tr>
<td>14. Fire</td>
<td></td>
<td>.21</td>
<td>.24</td>
</tr>
<tr>
<td>15. Motor vehicle accident</td>
<td></td>
<td>.33</td>
<td>.09</td>
</tr>
<tr>
<td>16. Dog attack</td>
<td></td>
<td>.32</td>
<td>.33</td>
</tr>
<tr>
<td>17. Other medical trauma</td>
<td></td>
<td>.19</td>
<td>.24</td>
</tr>
<tr>
<td>18. Natural disaster</td>
<td></td>
<td>.05</td>
<td>.32</td>
</tr>
<tr>
<td>19. Other Trauma</td>
<td></td>
<td>.01</td>
<td>.37</td>
</tr>
</tbody>
</table>
Mediator and Dependent Variable Composites

Composite variables were created for the one mediator, dissociation, and each of the three dependent variables, posttraumatic stress, internalizing, and externalizing. Cronbach’s alpha was used to determine the reliability for each of the proposed composites. It was expected that the composites should have acceptable alphas prior to being combined in order to ensure they have internal reliability and are thus capturing the same construct. Several of the measures used to assess the mediator and dependent variables were originally entered into the dataset as total score in the form of T-scores, while other measures were entered as unstandardized total scores. In order to avoid creating composite variables composed of measures on different metrics, each variable was converted to a z-score in order to standardize the variables prior to creating composites. Then the z-score variables that assessed each construct were averaged to create the composite variable for that construct. Each composite will be discussed in turn.

See Table 7 for the reliability for mediator and dependent variable composites.

Table 7 Reliability for Mediator and Dependent Variable Composites

<table>
<thead>
<tr>
<th>Dissociation Composite</th>
<th>Cronbach’s Alpha n = 142</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CDES</td>
<td>.59</td>
<td>.21</td>
<td></td>
</tr>
<tr>
<td>2. TSCC-DIS</td>
<td>.64</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>3. CDC</td>
<td>.12</td>
<td>.79</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Dissociation Composite</th>
<th>Cronbach’s Alpha n = 154</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CDES</td>
<td>.77</td>
<td>.65</td>
<td></td>
</tr>
<tr>
<td>2. TSCC-DIS</td>
<td>.65</td>
<td>.65</td>
<td></td>
</tr>
</tbody>
</table>
Table 7 (continued)

<table>
<thead>
<tr>
<th>PTS Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 109$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. TSCC-PTS</td>
<td>.62</td>
<td></td>
<td>.42</td>
</tr>
<tr>
<td>5. UPID-P</td>
<td>.64</td>
<td></td>
<td>.75</td>
</tr>
<tr>
<td>6. UPID-C</td>
<td>.59</td>
<td></td>
<td>.44</td>
</tr>
<tr>
<td>7. PTSD-DICA</td>
<td>.63</td>
<td></td>
<td>.61</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final PTS Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 126$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. TSCC-PTS</td>
<td>.73</td>
<td></td>
<td>.53</td>
</tr>
<tr>
<td>6. UPID-C</td>
<td>.77</td>
<td></td>
<td>.50</td>
</tr>
<tr>
<td>7. PTSD-DICA</td>
<td>.68</td>
<td></td>
<td>.83</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Internalizing Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 93$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. CBCL-I</td>
<td>.25</td>
<td></td>
<td>.64</td>
</tr>
<tr>
<td>9. RCMAS</td>
<td>.54</td>
<td></td>
<td>.48</td>
</tr>
<tr>
<td>10. SAD-DICA</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. CDI</td>
<td>.59</td>
<td></td>
<td>.44</td>
</tr>
<tr>
<td>12. MDD-DICA</td>
<td>.54</td>
<td></td>
<td>.59</td>
</tr>
<tr>
<td>13. DYS-DICA</td>
<td>.43</td>
<td></td>
<td>.61</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Internalizing Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 106$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. RCMAS</td>
<td>.64</td>
<td></td>
<td>.48</td>
</tr>
<tr>
<td>10. SAD-DICA</td>
<td>.66</td>
<td></td>
<td>.67</td>
</tr>
<tr>
<td>11. CDI</td>
<td>.63</td>
<td></td>
<td>.45</td>
</tr>
<tr>
<td>12. MDD-DICA</td>
<td>.65</td>
<td></td>
<td>.64</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Externalizing Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 114$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. CBCL-E</td>
<td>.19</td>
<td></td>
<td>.33</td>
</tr>
<tr>
<td>15. ADHD-DICA</td>
<td>.26</td>
<td></td>
<td>.17</td>
</tr>
<tr>
<td>16. CD-DICA</td>
<td>.34</td>
<td></td>
<td>.17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Externalizing Composite</th>
<th>Cronbach’s Alpha</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 119$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. ADHD-DICA</td>
<td>.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. CD-DICA</td>
<td>.30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Mediator: Dissociation.** The Dissociation composite was composed originally of the CDES (including only the 21 items intended to reflect dissociative experiences), TSCC-Dissociation (TSCC-DIS) subscale, and the CDC. The 3 measures yielded an alpha of .60. The CDC demonstrated a corrected item-total correlation of .12, and when this measure was deleted from the composite, the alpha increased to .77. For this reason, the CDC was excluded from the final Dissociation composite. The TSCC-DIS subscale was only available as a T-score, so both the CDES and TSCC-DIS were converted to z-scores and then the two were averaged together to create the final composite variable. If either variable was missing, then the other was used by itself as a representation of the Dissociation composite variable.

**Dependent Variable: Posttraumatic Stress Symptoms.** The Posttraumatic Stress composite was composed originally of the TSCC-Posttraumatic Stress subscale (TSCC-PTS), UPID- Parent, UPID- Child, and the DICA- PTSD total symptoms. The four measures yielded an alpha of .64. The UPID-Parent demonstrated a corrected item-total correlation of .20, and when this measure was deleted from the composite, the alpha increased to .77. For this reason, the UPID- Parent was excluded from the final Posttraumatic Stress composite. The TSCC-PTS subscale was only available as a T-score, so the TSCC-PTS, UPID- Child, and DICA- PTSD were converted to z-scores and then the three were averaged together to create the final composite variable. If any of the three variables was missing then the others were included as a representation of the Posttraumatic Stress composite variable.
**Dependent Variable: Internalizing Symptoms.** The Internalizing composite was originally composed of the CBCL-Internalizing subscale (CBCL-I), RCMAS, DICA-Separation Anxiety Disorder total symptoms (DICA-SAD), CDI, DICA-Major Depressive Disorder total symptoms (DICA-MDD), and the DICA-Dysthymia total symptoms (DICA-DYS). The six measures yielded an alpha of .62. The CBCL-I and DICA-DYS demonstrated corrected item-total correlations of .25 and .43, respectively. When these measures were deleted from the composite, the alpha increased to .66. DICA-DYS also demonstrated an elevated positive kurtosis indicating a flatter than normal distribution, supporting its exclusion from the internalizing composite. For these reasons, the CBCL-I and DICA-DYS were excluded from the Posttraumatic Stress composite. The CDI was only available as a T-score, so the CDI, RCMAS, DICA-SAD, and DICA-MDD were converted to z-scores and then the four were averaged together to create the final composite variable. If one or two of the four variables were missing then the others were included as a representation of the Posttraumatic Stress composite variable. If three of the four were missing then the variable was coded as missing.

**Dependent Variable: Externalizing Symptoms.** The Externalizing composite was originally composed of the CBCL-Externalizing subscale (CBCL-E), DICA-Attention Deficit Hyperactivity Disorder total symptoms (DICA-ADHD), and the DICA-Conduct Disorder total symptoms (DICA-CD). The three measures yielded an alpha of .26. The CBCL-E demonstrated a corrected item-total correlation of .19. When this measure was deleted from the composite, the alpha increased only minimally to .33. For this reason, the CBCL-E was excluded from the Externalizing composite. The DICA-
ADHD and DICA-CD were converted to z-scores and then the two were averaged together to create a composite variable. If either of the variables was missing, then the other was included as a representation of the Externalizing composite variable. However, this Externalizing composite was not used in final regression analyses for the following reasons: (1) due to the low alpha for the Externalizing composite, (2) based on correlational analyses indicating no significant differences in relation to the dependent variables between the Externalizing composite and the three separate measures. Thus, the three measures of externalizing behaviors (CBCL-E, DICA-ADHD, and DICA-CD) were each examined separately in final regression analyses.

**Moderator: Adverse Experiences.** The Adverse Experiences variable was assessed via the clinician-administered TEC. The variable consists of the following 10 items: History of Impaired Caregiver (e.g., depression, mental illness, drug or alcohol abuse), Exposure to prostitution or other developmentally inappropriate behavior or material, Exposure to other criminal behavior in the home (e.g., drug use), Neglect (physical, medical, or educational), History of foster placement, Substitute care (no DCFS involvement but live with other than biological parent), Homelessness, Incarcerated significant other, Death of significant other (other than primary caregiver), and Unresolved trauma history in current caregiver. The 10 different adverse experiences were coded as 1 for present and 0 for absent. Adverse Experiences is a continuous variable consisting of a possible range from 0-10.

**Moderator: Age.** Age was originally divided into categories of childhood, 8-11 years, and adolescence, 12-18 years. Age 12 was included within the adolescence
category for two reasons: (1) age 12 is often included within adolescent and young adolescent categories in clinical trauma research (Fowler et al., 2009; Mueser & Taub, 2008) and (2) including age 12 with ages 13-18 resulted in a more even split of the sample (ages 8-11 n = 89, ages 12-18 n = 87). However, based on correlational relations between the age categories and the independent, dependent, and mediator variables, age categories were not used in regression analyses when age was included as a control. For the final mediation analyses, age was used as a control variable and was kept as a continuous variable consisting of a possible range from 8-18. The age categories were used in the investigation of age as a moderator as the sample was divided into the two categories and the mediated model was run twice at each level of the moderator of age, children ages 8-11 and adolescents ages 12-18.

**Moderator: Gender.** Gender was coded as 0 for male and 1 for female. Gender was included as a control variable in the mediational analyses as well as investigated as a moderator. The sample was divided into males and females and the mediated model was run twice at each level of the moderator of gender.

**Correlational Analyses**

Correlations among independent variable trauma types prior to the creation of composite variables are presented in Table 4. Correlations among mediators and dependent variables prior to creation of composite variables are presented in Table 5. Preliminary correlations among all variables including preliminary composites are presented in Table 8. Correlations, means, and standard deviations among all variables and composite variables to be used in final mediation analyses are presented in Table 9.
Table 8 Preliminary Correlations Among All Variables (n = 121-176)

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maltreatment 1-5</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2. Sexual Maltreatment 1-2</td>
<td>.59**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3. Non-Sexual Maltreatment 3-</td>
<td>.49**</td>
<td>-.05</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>4. Community Violence 6-12</td>
<td>-.23**</td>
<td>-.21**</td>
<td>-.06</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>5. Community Violence 6-9, 12</td>
<td>-.26**</td>
<td>-.21**</td>
<td>-.08</td>
<td>.94**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>6. CV Abduction Torture</td>
<td>.08</td>
<td>.00</td>
<td>.03</td>
<td>.17*</td>
<td>-.17*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>7. Other/Acute Trauma 13-19</td>
<td>-.26**</td>
<td>-.32**</td>
<td>-.04</td>
<td>.14</td>
<td>.08</td>
<td>.17*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>8. Chronicity (1/2)</td>
<td>.51**</td>
<td>.23**</td>
<td>.43**</td>
<td>-.09</td>
<td>-.09</td>
<td>.00</td>
<td>-.08</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>9. Poly-Exposure (1-19)</td>
<td>.18*</td>
<td>.00</td>
<td>.51**</td>
<td>.45**</td>
<td>.38**</td>
<td>.19*</td>
<td>.39**</td>
<td>.36**</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>10. Poly-Exposure Categories</td>
<td>.15</td>
<td>-.01</td>
<td>.49**</td>
<td>.44**</td>
<td>.38**</td>
<td>.18*</td>
<td>.37**</td>
<td>.33**</td>
<td>.92**</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>11. Severity 1</td>
<td>.45**</td>
<td>.17*</td>
<td>.53**</td>
<td>.09</td>
<td>.06</td>
<td>.07</td>
<td>.07</td>
<td>.93**</td>
<td>.64**</td>
<td>.65**</td>
<td>--</td>
</tr>
<tr>
<td>12. Severity 2</td>
<td>.32**</td>
<td>.10</td>
<td>.57**</td>
<td>.30**</td>
<td>.26**</td>
<td>.12</td>
<td>.27**</td>
<td>.65**</td>
<td>.92**</td>
<td>.82**</td>
<td>.84**</td>
</tr>
<tr>
<td>13. Dissociation</td>
<td>.04</td>
<td>.14</td>
<td>.02</td>
<td>.17*</td>
<td>.17*</td>
<td>-.00</td>
<td>.02</td>
<td>.08</td>
<td>.16*</td>
<td>.11</td>
<td>.12</td>
</tr>
<tr>
<td>14. Posttraumatic Stress</td>
<td>.15</td>
<td>.20*</td>
<td>.09</td>
<td>.21**</td>
<td>.23**</td>
<td>-.07</td>
<td>-.07</td>
<td>.07</td>
<td>.23**</td>
<td>.15</td>
<td>.11</td>
</tr>
<tr>
<td>15. Internalizing</td>
<td>.11</td>
<td>.14</td>
<td>.06</td>
<td>.14</td>
<td>.14</td>
<td>.00</td>
<td>-.00</td>
<td>.02</td>
<td>.16*</td>
<td>.07</td>
<td>.04</td>
</tr>
<tr>
<td>16. Externalizing DICA</td>
<td>-.02</td>
<td>-.06</td>
<td>.11</td>
<td>.06</td>
<td>.09</td>
<td>-.11</td>
<td>.00</td>
<td>.16</td>
<td>.11</td>
<td>.09</td>
<td>.13</td>
</tr>
<tr>
<td>17. CBCL-E</td>
<td>-.03</td>
<td>.01</td>
<td>.09</td>
<td>.08</td>
<td>.09</td>
<td>-.01</td>
<td>-.06</td>
<td>.10</td>
<td>.16*</td>
<td>.19*</td>
<td>.16*</td>
</tr>
<tr>
<td>18. DICA ADHD</td>
<td>-.08</td>
<td>-.06</td>
<td>.01</td>
<td>.05</td>
<td>.07</td>
<td>-.08</td>
<td>.09</td>
<td>.07</td>
<td>.04</td>
<td>.03</td>
<td>.05</td>
</tr>
<tr>
<td>19. DICA CD</td>
<td>.05</td>
<td>-.05</td>
<td>.17</td>
<td>.08</td>
<td>.10</td>
<td>-.07</td>
<td>-.10</td>
<td>.19*</td>
<td>.17</td>
<td>.12</td>
<td>.18*</td>
</tr>
<tr>
<td>20. Adverse Experiences</td>
<td>.10</td>
<td>-.11</td>
<td>.38**</td>
<td>.12</td>
<td>.05</td>
<td>.19*</td>
<td>.04</td>
<td>.36**</td>
<td>.42**</td>
<td>.45**</td>
<td>.47**</td>
</tr>
<tr>
<td>21. Age</td>
<td>-.08</td>
<td>-.12</td>
<td>-.02</td>
<td>.20**</td>
<td>.20**</td>
<td>-.00</td>
<td>.06</td>
<td>.13</td>
<td>.20**</td>
<td>.24**</td>
<td>.18*</td>
</tr>
<tr>
<td>22. Age Categories</td>
<td>-.08</td>
<td>-.12</td>
<td>-.05</td>
<td>.24**</td>
<td>.24**</td>
<td>.01</td>
<td>.07</td>
<td>.08</td>
<td>.15*</td>
<td>.18*</td>
<td>.12</td>
</tr>
<tr>
<td>23. Gender</td>
<td>.34**</td>
<td>.34**</td>
<td>.04</td>
<td>.01</td>
<td>.01</td>
<td>.00</td>
<td>-.11</td>
<td>.13</td>
<td>-.01</td>
<td>.01</td>
<td>.09</td>
</tr>
</tbody>
</table>

Note: * p < .05; ** p < .01
Table 8 (continued)

<table>
<thead>
<tr>
<th>Variables</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maltreatment 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sexual Maltreatment 1-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Non-Sexual Maltreatment 3-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Community Violence 6-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Community Violence 6-9, 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. CV Abduction Torture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Other/Acute Trauma 13-19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Chronicity (1/2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Poly-Exposure (1-19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Poly-Exposure Categories</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Severity 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Severity 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Dissociation</td>
<td>.16*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Posttraumatic Stress</td>
<td>.23**</td>
<td>.67**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Internalizing</td>
<td>.13</td>
<td>.60**</td>
<td>.70**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Externalizing DICA</td>
<td>.15</td>
<td>.32**</td>
<td>.23**</td>
<td>.42**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. CBCL-E</td>
<td>.17*</td>
<td>.03</td>
<td>.04</td>
<td>-.05</td>
<td>.19*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. DICA ADHD</td>
<td>.05</td>
<td>.42**</td>
<td>.28**</td>
<td>.45**</td>
<td>.83**</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. DICA CD</td>
<td>.21*</td>
<td>.14</td>
<td>.10</td>
<td>.26**</td>
<td>.80**</td>
<td>.25**</td>
<td>.30**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Adverse Experiences</td>
<td>.47**</td>
<td>-.06</td>
<td>-.07</td>
<td>-.13</td>
<td>.13</td>
<td>.24**</td>
<td>-.03</td>
<td>.29**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Age</td>
<td>.20**</td>
<td>-.08</td>
<td>.06</td>
<td>.08</td>
<td>.07</td>
<td>-.06</td>
<td>-.10</td>
<td>.19*</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Age Categories</td>
<td>.15</td>
<td>-.04</td>
<td>.04</td>
<td>.09</td>
<td>.07</td>
<td>-.11</td>
<td>-.08</td>
<td>.21*</td>
<td>.11</td>
<td>.84**</td>
<td></td>
</tr>
<tr>
<td>23. Gender</td>
<td>.03</td>
<td>.03</td>
<td>.04</td>
<td>.04</td>
<td>-.08</td>
<td>-.09</td>
<td>-.09</td>
<td>-.06</td>
<td>-.06</td>
<td>.15*</td>
<td>.21**</td>
</tr>
</tbody>
</table>

Note: * p < .05; ** p < .01
Table 9 *Correlations Among All Final Variables* (n = 121-176)

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Com Vio</td>
<td>-</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>-</td>
<td>.14</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Frequency</td>
<td>.51*</td>
<td>-.09</td>
<td>-.08</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Poly-</td>
<td>.18*</td>
<td>.45*</td>
<td>.39*</td>
<td>.36*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Severity</td>
<td>.32*</td>
<td>.30*</td>
<td>.27*</td>
<td>.65*</td>
<td>.92*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mediator</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>.04</td>
<td>.17*</td>
<td>.02</td>
<td>.08</td>
<td>.16*</td>
<td>.16*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dependent</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. PTS</td>
<td>.15</td>
<td>.21*</td>
<td>-.07</td>
<td>.07</td>
<td>.23*</td>
<td>.23*</td>
<td>.67*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>.11</td>
<td>.14</td>
<td>-.00</td>
<td>.02</td>
<td>.16*</td>
<td>.13</td>
<td>.60*</td>
<td>.70*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. CBCL-</td>
<td>-.03</td>
<td>.08</td>
<td>-.06</td>
<td>.10</td>
<td>.16*</td>
<td>.17*</td>
<td>.03</td>
<td>.04</td>
<td>-.05</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. ADHD</td>
<td>-.08</td>
<td>.05</td>
<td>.09</td>
<td>.07</td>
<td>.04</td>
<td>.05</td>
<td>.42*</td>
<td>.45*</td>
<td>.10</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. CD</td>
<td>.05</td>
<td>.08</td>
<td>-.11</td>
<td>.19*</td>
<td>.17</td>
<td>.21*</td>
<td>.14</td>
<td>.10</td>
<td>.26*</td>
<td>.25*</td>
<td>.30*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Moderators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Adv Exp</td>
<td>.10</td>
<td>.12</td>
<td>.04</td>
<td>.36*</td>
<td>.42*</td>
<td>.47*</td>
<td>-.06</td>
<td>-.07</td>
<td>-.13</td>
<td>.24*</td>
<td>.03</td>
<td>.29*</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Age</td>
<td>-.08</td>
<td>.20*</td>
<td>.06</td>
<td>.13</td>
<td>.20*</td>
<td>.20*</td>
<td>-.08</td>
<td>.06</td>
<td>.08</td>
<td>-.06</td>
<td>-.10</td>
<td>.19*</td>
<td>.07</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>15. Gender</td>
<td>.34*</td>
<td>.01</td>
<td>-.11</td>
<td>.13</td>
<td>-.01</td>
<td>.03</td>
<td>.03</td>
<td>.04</td>
<td>.04</td>
<td>-.09</td>
<td>-.09</td>
<td>-.06</td>
<td>-.06</td>
<td>.15*</td>
<td>--</td>
</tr>
</tbody>
</table>

Mean: .82 .51 .34 1.58 2.78 4.67 .00 -.01 -.01 0 0 0 2.69 11.5 .59
Standard Dev: .39 .50 .47 .50 1.51 3.29 .91 .88 .78 1 1 1 2.26 2.51 .49
n: 174 173 173 176 174 174 166 167 164 166 135 121 171 176 176

*Note: *p < .05; **p < .01*
In regard to type of trauma, only the Community Violence type was significantly related to any of the outcome variables. Community Violence was significantly positively associated with increased dissociation ($r = .17, p < .05$) and increased posttraumatic stress symptoms ($r = .21, p < .01$). Contrary to expectations, the Maltreatment and Other/Acute trauma types were not significantly associated with any of the outcome variables. Chronicity of trauma was significantly positively associated with increased symptom criteria for a diagnosis of Conduct Disorder ($r = .19, p < .05$). Poly-Exposure to trauma was significantly positively associated with increased dissociation ($r = .16, p < .05$), increased posttraumatic stress symptoms ($r = .23, p < .01$), increased internalizing symptoms ($r = .16, p < .05$), and increased externalizing symptoms ($r = .16, p < .05$). Severity of trauma was significantly positively associated with increased dissociation ($r = .16, p < .05$), increased posttraumatic stress symptoms ($r = .23, p < .01$), increased externalizing symptoms ($r = .17, p < .05$), and increased symptom criteria for a diagnosis of Conduct Disorder ($r = .21, p < .05$). The mediating variable, dissociation, was significantly positively associated with increased posttraumatic stress symptoms ($r = .67, p < .01$), increased externalizing symptoms ($r = .60, p < .01$), and increased symptom criteria for a diagnosis of Attention Deficit Hyperactivity Disorder ($r = .42, p < .01$).

For hypothesized moderators, age, gender and adverse experiences, correlational analyses indicated several significant relations. Age was significantly positively associated with the Community Violence trauma type ($r = .20, p < .01$), poly-exposure to trauma ($r = .20, p < .01$), severity of trauma ($r = .20, p < .01$), and increased symptom criteria for a diagnosis of Conduct Disorder ($r = .19, p < .05$). Gender was significantly
positively associated with the Maltreatment trauma type \( (r = .34, p < .01) \) and age \( (r = .15, p < .05) \). Adverse experiences was significantly positively associated with the chronicity of trauma \( (r = .36, p < .01) \), poly-exposure to trauma \( (r = .42, p < .01) \), severity of trauma \( (r = .47, p < .01) \), increased externalizing symptoms \( (r = .24, p < .01) \), and increased symptom criteria for a diagnosis of Conduct Disorder \( (r = .29, p < .01) \).

**Mediation Analyses**

According to the first hypothesis, *various aspects of trauma (type, chronicity, poly-exposure, and severity) will be significantly positively related to various outcomes (posttraumatic stress, internalizing, and externalizing symptoms)*. As expected, (1) the Maltreatment and Community Violence types were significantly positively related to posttraumatic stress and internalizing symptoms, (2) chronicity was significantly positively related to diagnoses of Conduct Disorder, (3) poly-exposure was significantly positively related to posttraumatic stress and externalizing symptoms, and (4) severity was significantly positively related to posttraumatic stress symptoms, externalizing symptoms, and diagnoses of Conduct Disorder.

According to the second hypothesis, *dissociation will mediate the relationship between various aspects of trauma (type, chronicity, poly-exposure, and severity) and various outcomes (posttraumatic stress, internalizing, and externalizing symptoms)*. As expected, dissociation was a significant mediator of the relations between (1) the Community Violence trauma type and posttraumatic stress, (2) poly-exposure to trauma and posttraumatic stress, (3) severity of trauma and posttraumatic stress, (4) community
violence trauma type and internalizing symptoms, and (5) poly-exposure and internalizing symptoms.

To establish mediation, the following four conditions are necessary and are presented below for each mediational pathway (Baron & Kenny, 1986). First, the independent variable must be significantly related to the outcome variable. Second, the independent variable must be significantly related to the mediator. Third, the mediator must be significantly related to the outcome variable, controlling for the independent variable. Fourth, to establish complete mediation, the effect of the independent variable on the outcome variable should be significantly attenuated when the mediator is included in the regression model. The Sobel test is used to determine whether the drop in the total effect is significant. The effects in both Steps 3 and 4 are estimated in the same regression. Thus, three regressions were run to meet all four conditions of mediation for each of the mediated pathways and are detailed below. Age and Gender were included in all regression analyses as controls entered in Step 1 of the regression models.

Trauma Type and PTS

Mediation analyses revealed significant relations between trauma type (specifically, Maltreatment type and Community Violence type) and participants' posttraumatic stress symptoms. The first regression analysis indicated that the Maltreatment type and the Community Violence type were significantly positively associated with posttraumatic stress, $B = .48$, $\beta = .21$, $t(164) = 2.48$, $p = .014$ and $B = .45$, $\beta = .26$, $t(164) = 3.26$, $p = .001$, respectively. That is, participants who reported exposure to the Maltreatment and the Community Violence trauma types, reported higher levels of
posttraumatic symptoms as well. The Other/Acute trauma type was not significantly related to posttraumatic stress symptoms and thus was not investigated further. The second regression analysis indicated that the Community Violence type was significantly positively associated with dissociation, \( B = .37, \beta = .21, t(163) = 2.52, p = .013 \). That is, participants who reported exposure to the Community Violence trauma type, reported higher levels of dissociation as well. The Maltreatment trauma type was not significantly related to dissociation and thus was not investigated further. The final regression analysis included both the Community Violence type and dissociation in predicting posttraumatic stress symptoms. The third condition was met in that dissociation was significantly positively associated with posttraumatic stress symptoms, controlling for Community Violence type, \( B = .63, \beta = .65, t(163) = 11.03, p = .000 \). That is, participants who reported higher levels of dissociation reported higher levels of posttraumatic stress symptoms as well. The fourth condition was met in that the relationship between the Community Violence type and posttraumatic stress symptoms was decreased, \( B = .22, \beta = .13, t(157) = 2.07, p = .04 \), when dissociation was controlled. The Sobel method revealed that the indirect path (the reduction in the direct path) was statistically significant, \( z = 2.45, p = .01 \). Thus, dissociation mediated the relationship between the Community Violence type and posttraumatic stress symptoms (see Figure 1).
Figure 1 Significant Mediation Analyses for the Whole Sample (n = 165)

Note: Values on the paths are path coefficients (standardized betas). Path coefficients inside parentheses are zero-order betas. Path coefficients outside parentheses are partial regression coefficients from equations that include the mediating variable with a direct effect on the criterion. *p < .05. **p < .01. ***p < .001. Sobel test of mediation results, in the form of z-scores are located in the upper right corner of each figure.
Mediation analyses revealed significant relations between trauma type (specifically, Community Violence type) and participants' internalizing symptoms. The first regression analysis indicated that the Community Violence type was significantly positively associated with internalizing symptoms, $B = .27, \beta = .17, t(161) = 2.10, p = .04$. The Maltreatment type approached significance, $B = .34, \beta = .17, t(161) = 1.93, p = .06$. That is, participants who reported exposure to the Maltreatment and the Community Violence trauma types, reported higher levels of internalizing symptoms as well. The Other/Acute trauma type was not significantly related to internalizing symptoms and thus was not investigated further. The second regression analysis indicated that the Community Violence type was significantly positively associated with dissociation, $B = .37, \beta = .21, t(163) = 2.52, p = .01$. That is, participants who reported exposure to the Community Violence trauma type, reported higher levels of dissociation as well. The second condition was not met for Maltreatment type, as it was not significantly related to dissociation. The final regression analysis included both the Community Violence type and dissociation in predicting internalizing symptoms. The third condition was met in that dissociation was significantly positively associated with internalizing symptoms, controlling for Community Violence type, $B = .52, \beta = .61, t(158) = 9.43, p = .000$. That is, participants who reported higher levels of dissociation, reported higher levels of internalizing symptoms as well. The fourth condition was met in that the relationship between the Community Violence type and internalizing symptoms was decreased, $B = .05, \beta = .03, t(158) = .48, p = .64$, when dissociation was controlled. The Sobel method
revealed that the indirect path (the reduction in the direct path) was statistically significant, $z = 2.43, p = .02$. Thus, dissociation mediated the relationship between the Community Violence type and internalizing symptoms (see Figure 1).

_Trauma Type and Externalizing Symptoms, ADHD and CD_

For externalizing symptoms, the first regression analysis indicated that the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to externalizing symptoms, $B = .00, \beta = .00, t(162) = .01, p = .99$, $B = .22, \beta = .11, t(162) = 1.29, p = .20$, and $B = -.17, \beta = -.08, t(162) = -.98, p = .33$, respectively. For ADHD, the first regression analysis indicated that the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of ADHD, $B = -.07, \beta = -.03, t(132) = -.28, p = .78$, $B = .10, \beta = .05, t(132) = .56, p = .58$, and $B = .16, \beta = .07, t(132) = .81, p = .42$, respectively. For CD, the first regression analysis indicated that the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of CD, $B = .25, \beta = .09, t(120) = .91, p = .37$, $B = .18, \beta = .09, t(120) = .93, p = .35$, and $B = -.26, \beta = -.12, t(120) = -1.26, p = .21$, respectively. Thus, since there were no significant relationships between the independent trauma type variables of Maltreatment type, Community Violence type, and Other/Acute trauma type and the outcome variables of externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.
The first regression analysis indicated that chronicity of trauma was not significantly related to posttraumatic stress symptoms, $B = .10, \beta = .06, t(166) = .74, p = .46$, internalizing symptoms, $B = .02, \beta = .01, t(163) = .12, p = .91$, externalizing symptoms, $B = .23, \beta = .12, t(165) = 1.47, p = .14$ or ADHD, $B = .22, \beta = .11, t(134) = 1.18, p = .22$. Thus, since there were no significant relationships between the independent variable of chronicity of trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, and ADHD, then the first condition of mediation was not met and no further analyses were conducted.

Mediation analyses revealed significant relations between chronicity of trauma and participants' diagnosis of CD. The first regression analysis indicated that chronicity of trauma was significantly positively associated with a diagnosis of CD, $B = .38, \beta = .18, t(120) = 1.99, p = .05$. That is, participants who reported exposure to a chronic trauma reported more symptom criteria for a diagnosis of CD. The second regression analysis indicated that chronicity of trauma was not significantly associated with dissociation, $B = .16, \beta = .09, t(165) = 1.11, p = .27$. That is, participants who reported exposure to a chronic trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of chronicity of trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.
Mediation analyses revealed significant relations between poly-exposure to trauma and participants' posttraumatic stress symptoms. The first regression analysis indicated that poly-exposure to trauma was significantly positively associated with posttraumatic stress, $B = .13$, $\beta = .23$, $t(164) = 2.90$, $p = .00$. That is, participants who reported higher levels of poly-exposure to trauma, reported higher levels of posttraumatic symptoms as well. The second regression analysis indicated that poly-exposure to trauma was significantly positively associated with dissociation, $B = .11$, $\beta = .18$, $t(163) = 2.24$, $p = .03$. That is, participants who reported higher levels of poly-exposure to trauma, reported higher levels of dissociation as well. The final regression analysis included both poly-exposure to trauma and dissociation in predicting posttraumatic stress symptoms. The third condition was met in that dissociation was significantly positively associated with posttraumatic stress symptoms, controlling for poly-exposure, $B = .64$, $\beta = .65$, $t(163) = 11.00$, $p = .00$. That is, participants who reported higher levels of dissociation, reported higher levels of posttraumatic stress symptoms as well. The fourth condition was met in that the relationship between poly-exposure to trauma and posttraumatic stress symptoms was decreased, $B = .07$, $\beta = .11$, $t(163) = 1.84$, $p = .07$, when dissociation was controlled. The Sobel method revealed that the indirect path (the reduction in the direct path) was statistically significant, $z = 2.18$, $p = .03$. Thus, dissociation mediated the relationship between poly-exposure to trauma and posttraumatic stress symptoms (see Figure 1).
Poly-Exposure and Internalizing Symptoms

Mediation analyses revealed significant relations between poly-exposure to trauma and participants' internalizing symptoms. The first regression analysis indicated that poly-exposure to trauma was positively associated with internalizing symptoms, these findings approached significance, $B = .08, ß = .15, t(161) = 1.88, p = .06$. That is, participants who reported higher levels of poly-exposure to trauma, reported higher levels of internalizing symptoms as well. The second regression analysis indicated that poly-exposure to trauma was positively associated with dissociation, these findings were significant, $B = .11, ß = .18, t(163) = 2.24, p = .03$. That is, participants who reported higher levels of poly-exposure to trauma, reported higher levels of dissociation as well.

The final regression analysis included both poly-exposure to trauma and dissociation in predicting internalizing symptoms. The third condition was met in that dissociation was significantly positively associated with internalizing symptoms, controlling for poly-exposure, $B = .52, ß = .61, t(158) = 9.53, p = .00$. That is, participants who reported higher levels of dissociation, reported higher levels of internalizing symptoms as well. The fourth condition was met in that the relationship between poly-exposure to trauma and internalizing symptoms was decreased, $B = .02, ß = .04, t(158) = .54, p = .59$, when dissociation was controlled. The Sobel method revealed that the indirect path (the reduction in the direct path) was statistically significant, $z = 2.17, p = .03$. Thus, dissociation mediated the relationship between poly-exposure to trauma and internalizing symptoms (see Figure 1).
Mediation analyses revealed significant relations between poly-exposure to trauma and participants' externalizing symptoms. The first regression analysis indicated that poly-exposure to trauma was significantly positively associated with externalizing symptoms, $B = .11, \beta = .17, t(163) = 2.16, p = .03$. That is, participants who reported higher levels of poly-exposure to trauma, reported higher levels of externalizing symptoms as well. The second regression analysis indicated that poly-exposure to trauma was significantly positively associated with dissociation, $B = .11, \beta = .18, t(163) = 2.24, p = .03$. That is, participants who reported higher levels of poly-exposure to trauma, reported higher levels of dissociation as well. The final regression analysis included both poly-exposure to trauma and dissociation in predicting externalizing symptoms. The third condition was not met in that dissociation was not significantly associated with externalizing symptoms, controlling for poly-exposure, $B = .01, \beta = .01, t(154) = .13, p = .90$. That is, participants who reported higher levels of dissociation did not report higher levels of externalizing symptoms. Thus, since there was no significant relationship between the mediating variable of dissociation and the outcome variable of externalizing symptoms when controlling for the independent variable of poly-exposure, then the third condition of mediation was not met and the final condition was not examined. For ADHD and CD, the first regression analysis indicated that poly-exposure to trauma was not significantly related to ADHD, $B = .04, \beta = .06, t(132) = .71, p = .48$, or CD, $B = .09, \beta = .13, t(120) = 1.45, p = .15$. Thus, since there were no significant relationships between the independent variable of poly-exposure to trauma and the outcome variables
of ADHD and CD, then the first condition of mediation was not met and no further analyses were conducted.

Severity and PTS

Mediation analyses revealed significant relations between severity of trauma and participants' posttraumatic stress symptoms. The first regression analysis indicated that severity of trauma was significantly positively associated with posttraumatic stress, \( B = .06, \beta = .22, t(164) = 2.85, p = .01 \). That is, participants who reported higher levels of severity of trauma, reported higher levels of posttraumatic symptoms as well. The second regression analysis indicated that severity of trauma was significantly positively associated with dissociation, \( B = .05, \beta = .18, t(163) = 2.25, p = .03 \). That is, participants who reported higher levels of severity of trauma, reported higher levels of dissociation as well. The final regression analysis included both severity of trauma and dissociation in predicting posttraumatic stress symptoms. The third condition was met in that dissociation was significantly positively associated with posttraumatic stress symptoms, controlling for severity, \( B = .64, \beta = .65, t(163) = 11.00, p = .00 \). That is, participants who reported higher levels of dissociation reported higher levels of posttraumatic stress symptoms as well. The fourth condition was met in that the relationship between severity of trauma and posttraumatic stress symptoms was decreased, \( B = .03, \beta = .11, t(163) = 1.78, p = .08 \), when dissociation was controlled. The Sobel method revealed that the indirect path (the reduction in the direct path) was statistically significant, \( z = 2.24, p = .03 \). Thus, dissociation mediated the relationship between severity of trauma and posttraumatic stress symptoms (see Figure 1).
Severity and Internalizing and Externalizing Symptoms, ADHD and CD

The first regression analysis indicated that severity of trauma was not significantly related to internalizing symptoms, $B = .03$, $\beta = .12$, $t(161) = 1.53$, $p = .13$, or ADHD, $B = .02$, $\beta = .08$, $t(132) = .86$, $p = .39$. Thus, since there were no significant relationships between the independent variable of severity of trauma and the outcome variables of internalizing symptoms and ADHD, then the first condition of mediation was not met and no further analyses were conducted.

Mediation analyses revealed significant relations between severity of trauma and participants' externalizing symptoms. The first regression analysis indicated that severity of trauma was significantly positively associated with externalizing symptoms, $B = .06$, $\beta = .18$, $t(163) = 2.32$, $p = .02$. That is, participants who reported higher levels of severity of trauma, reported higher levels of externalizing symptoms as well. The second regression analysis indicated that severity of trauma was significantly positively associated with dissociation, $B = .05$, $\beta = .18$, $t(163) = 2.25$, $p = .03$. That is, participants who reported higher levels of severity of trauma, reported higher levels of dissociation as well. The final regression analysis included both severity of trauma and dissociation in predicting externalizing symptoms. The third condition was not met in that dissociation was not significantly associated with externalizing symptoms, controlling for severity, $B = .01$, $\beta = .01$, $t(154) = .11$, $p = .91$. That is, participants who reported higher levels of dissociation did not report higher levels of externalizing symptoms. Thus, since there was no significant relationship between the mediating variable of dissociation and the outcome variable of externalizing symptoms, when controlling for the independent
variable of severity, then the third condition of mediation was not met and the final condition was not examined.

Mediation analyses revealed significant relations between severity of trauma and participants' diagnosis of CD. The first regression analysis indicated that severity of trauma was significantly positively associated with a diagnosis of CD, $B = .05, \beta = .18, t(120) = 1.98, p = .05$. That is, participants who reported higher levels of severity of trauma reported more symptom criteria for a diagnosis of CD. The second regression analysis indicated that severity of trauma was significantly positively associated with dissociation, $B = .05, \beta = .18, t(163) = 2.25, p = .03$. That is, participants who reported higher levels of severity of trauma, reported higher levels of dissociation as well. The final regression analysis included both severity of trauma and dissociation in predicting a diagnosis of CD. The third condition was not met in that dissociation was not significantly associated with a diagnosis of CD, controlling for severity, $B = .14, \beta = .13, t(120) = 1.42, p = .16$. That is, participants who reported higher levels of dissociation were not more likely to meet criteria for a diagnosis of CD. Thus, since there was no significant relationship between the mediating variable of dissociation and the outcome variable of CD, when controlling for the independent variable of severity, then the third condition of mediation was not met and the final condition was not examined.

**Moderators**

According to the third hypothesis, *age, gender, and adverse experiences will moderate the mediated relations between various aspects of trauma (type, chronicity, poly-exposure, and severity), dissociation, and various outcomes (posttraumatic stress,***
internalizing, and externalizing symptoms). Age and gender were examined as exploratory moderators of the mediated model. Age was a significant moderator for one of the mediated models. Among adolescents only, dissociation significantly mediated the relation between Maltreatment type and posttraumatic stress symptoms, while among children this model was not supported. Contrary to expectations, gender did not significantly moderate any of the mediated models. Adverse Experiences was examined as a moderator according to two different methods. No significant interactions were found for Adverse Experiences according to the first method with interaction terms entered into the model; however there were significant moderator effects according to the second exploratory method. In the context of low Adverse Experiences, dissociation approached significant mediation in the relations between severity and posttraumatic stress and internalizing symptoms. In the context of high Adverse Experiences, dissociation significantly mediated the relations of Community Violence type, poly-exposure, and severity to posttraumatic stress.

Age

Age was investigated as a moderator by dividing the sample into two groups and running the mediational model twice at each level of the moderator. Among moderator analyses, the sample was divided into Child, ages 8-11, and Adolescent, ages 12-18. Age was divided in this way for two reasons. First, in order to create a more even split of the available sample, and second due to current research on the effects of trauma and PTSD which includes 12 year olds with adolescents (Fowler et al., 2009; Mueser & Taub, 2008). In order to effectively compare results to other research, 12-year-old participants
were considered to be more similar to an adolescent aged 13-18 than to a child aged 8-11. Results are listed below by age group.

**Child: Trauma Type and PTS, Internalizing, Externalizing, and ADHD.**

Among children, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to posttraumatic stress symptoms, $B = -.26$, $\beta = -.11$, $t(77) = -.87$, $p = .39$, $B = .33$, $\beta = .19$, $t(77) = 1.62$, $p = .11$, and $B = -.38$, $\beta = -.19$, $t(77) = -1.63$, $p = .11$, respectively. Among children, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to internalizing symptoms, $B = -.09$, $\beta = -.04$, $t(78) = -.34$, $p = .74$, $B = .14$, $\beta = .09$, $t(78) = .74$, $p = .46$, and $B = -.24$, $\beta = -.14$, $t(78) = -1.16$, $p = .25$, respectively. Among children, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to externalizing symptoms, $B = .31$, $\beta = .13$, $t(81) = 1.02$, $p = .31$, $B = .30$, $\beta = .16$, $t(81) = 1.43$, $p = .16$, and $B = -.04$, $\beta = -.02$, $t(81) = -.18$, $p = .86$, respectively. Among children, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of ADHD, $B = -.58$, $\beta = -.21$, $t(58) = -1.45$, $p = .15$, $B = -.13$, $\beta = -.06$, $t(58) = -.47$, $p = .64$, and $B = -.32$, $\beta = -.14$, $t(58) = -1.03$, $p = .31$, respectively. Thus, among children, since there were no significant relationships between the independent trauma type variables of Maltreatment type, Community Violence type, and Other/Acute trauma type and the outcome variables of posttraumatic stress, internalizing, externalizing, and ADHD, then the first condition of mediation was not met and no further analyses were conducted.
**Child: Trauma Type and CD.** Among children, the first regression analyses indicated that the Other/Acute trauma type was significantly negatively associated with a diagnosis of CD, $B = -.49, \beta = -.28, t(52) = -1.99, p = .05$. That is, children who reported exposure to the Other/Acute trauma type reported fewer symptom criteria for a diagnosis of CD. The second regression analysis indicated that, among children, the Other/Acute type was not significantly associated with dissociation, $B = -.47, \beta = -.22, t(76) = -1.90, p = .06$. That is, children who reported exposure to the Other/Acute trauma types did not report significantly higher levels of dissociation. Thus, since the independent variable of Other/Acute trauma type was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Adolescent: Trauma Type and PTS.** Among adolescents, the first regression analysis indicated that the Maltreatment and the Community Violence trauma types were significantly positively associated with posttraumatic stress, $B = 1.03, \beta = .48, t(86) = 4.38, p = .00$ and $B = .61, \beta = .35, t(86) = 3.41, p = .00$, respectively. That is, adolescents who reported exposure to the Maltreatment and the Community Violence trauma types, reported higher levels of posttraumatic symptoms as well. The second regression analysis indicated that the Maltreatment and the Community Violence types were significantly positively associated with dissociation, $B = .58, \beta = .27, t(86) = 2.30, p = .02$ and $B = .39, \beta = .23, t(86) = 2.05, p = .04$, respectively. That is, adolescents who reported exposure to the Maltreatment and the Community Violence trauma types, reported higher levels of dissociation as well. The final regression analysis included both
the Maltreatment and the Community Violence types and dissociation in predicting posttraumatic stress symptoms. The third condition was met in that dissociation was significantly positively associated with posttraumatic stress symptoms, controlling for Maltreatment and Community Violence types, $B = .51, \beta = .51, t(86) = 5.83, p = .00$. That is, adolescents who reported higher levels of dissociation reported higher levels of posttraumatic stress symptoms as well. The fourth condition was met for both trauma types in that the relationship between the Maltreatment type and the Community Violence type and posttraumatic stress symptoms was decreased, $B = .74, \beta = .35, t(86) = 3.59, p = .00$ and $B = .41, \beta = .24, t(86) = 2.65, p = .01$, respectively, when dissociation was controlled. The Sobel method revealed that the indirect path (the reduction in the direct path) was statistically significant for Maltreatment type, $z = 1.94, p = .05$; however, the indirect path was not statistically significant for Community Violence type, $z = 1.62, p = .10$. Thus, among adolescents, dissociation mediated the relationship between the Maltreatment type and posttraumatic stress symptoms, but dissociation did not mediate the relationship between the Community Violence type and posttraumatic stress symptoms (see Figure 2).

**Adolescent: Trauma Type and Internalizing.** Among adolescents, the first regression analysis indicated that the Maltreatment and the Community Violence trauma types were significantly positively associated with internalizing symptoms, $B = .71, \beta = .37, t(82) = 3.14, p = .00$ and $B = .45, \beta = .29, t(82) = 2.57, p = .01$, respectively. That is, adolescents who reported exposure to the Maltreatment and the Community Violence trauma types, reported higher levels of internalizing symptoms as well. The second
regression analysis indicated that the Maltreatment and the Community Violence types were significantly positively associated with dissociation, $B = .58$, $\beta = .27$, $t(86) = 2.30$, $p = .02$ and $B = .39$, $\beta = .23$, $t(86) = 2.05$, $p = .04$, respectively. That is, adolescents who reported exposure to the Maltreatment and the Community Violence trauma types, reported higher levels of dissociation as well. The final regression analysis included both the Maltreatment and the Community Violence types and dissociation in predicting internalizing symptoms. The third condition was met in that dissociation was significantly positively associated with internalizing symptoms, controlling for Maltreatment and Community Violence types, $B = .53$, $\beta = .60$, $t(82) = 6.56$, $p = .00$.

That is, adolescents who reported higher levels of dissociation, reported higher levels of internalizing symptoms as well. The fourth condition was met for both trauma types in that the relationship between the Maltreatment type and the Community Violence type and internalizing symptoms was decreased, $B = .36$, $\beta = .19$, $t(82) = 1.90$, $p = .06$ and $B = .22$, $\beta = .14$, $t(82) = 1.52$, $p = .13$, respectively, when dissociation was controlled.

However, the Sobel method revealed that the indirect path (the reduction in the direct path) was not statistically significant for Maltreatment type, $z = 1.47$, $p = .14$ or for Community Violence type, $z = 1.22$, $p = .22$. Thus, among adolescents, dissociation did not mediate the relationship between either the Maltreatment type or the Community Violence type and internalizing symptoms (see Figure 2).
Figure 2 Significant Mediation Analyses for Age - Adolescent (n = 87)

Note: Values on the paths are path coefficients (standardized betas). Path coefficients inside parentheses are zero-order betas. Path coefficients outside parentheses are partial regression coefficients from equations that include the mediating variable with a direct effect on the criterion. *p < .05. **p < .01. ***p < .001

Sobel test of mediation results, in the form of z-scores are located in the upper right corner of each figure.
Adolescents: Trauma Type and Externalizing, ADHD, and CD. Among adolescents, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to externalizing symptoms, $B = -.24$, $\beta = -.09$, $t(80) = -.74$, $p = .46$, $B = .08$, $\beta = .04$, $t(80) = .29$, $p = .77$, and $B = -.25$, $\beta = -.11$, $t(80) = -.98$, $p = .33$, respectively. Among adolescents, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of ADHD, $B = .38$, $\beta = .15$, $t(73) = 1.11$, $p = .27$, $B = .17$, $\beta = .09$, $t(73) = .69$, $p = .49$, and $B = .47$, $\beta = .23$, $t(73) = 1.88$, $p = .07$, respectively. Among adolescents, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of CD, $B = .11$, $\beta = .04$, $t(67) = .27$, $p = .79$, $B = .27$, $\beta = .12$, $t(67) = .91$, $p = .37$, and $B = -.12$, $\beta = -.05$, $t(67) = -.38$, $p = .70$, respectively. Thus, among adolescents, since there were no significant relationships between the independent trauma type variables of Maltreatment type, Community Violence type, and Other/Acute trauma type and the outcome variables of externalizing, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

Child: Chronicity and PTS, Internalizing, Externalizing, and ADHD. Among children, chronicity of trauma was not significantly related to posttraumatic stress symptoms, $B = -.00$, $\beta = .00$, $t(79) = -.01$, $p = .10$, internalizing symptoms, $B = .01$, $\beta = .01$, $t(80) = .06$, $p = .95$, externalizing symptoms, $B = .32$, $\beta = .17$, $t(84) = 1.55$, $p = .13$, or ADHD, $B = .22$, $\beta = .11$, $t(60) = .83$, $p = .41$. Thus, among children, since there were no significant relationships between the independent variable of chronicity of trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms,
externalizing symptoms, and ADHD, then the first condition of mediation was not met and no further analyses were conducted.

Child: Chronicity and CD. Among children, the first regression analyses indicated that chronicity of trauma was significantly positively associated with a diagnosis of CD, \( B = .47, \beta = .30, t(52) = 2.21, p = .03 \). That is, children who reported exposure to a chronic trauma reported more symptom criteria for a diagnosis of CD. The second regression analysis indicated that, among children, chronicity of trauma was not significantly associated with dissociation, \( B = .30, \beta = .16, t(78) = 1.40, p = .17 \). That is, children who reported exposure to a chronic trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of chronicity of trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

Adolescents: Chronicity and PTS, Internalizing, Externalizing, ADHD, and CD. Among adolescents, chronicity of trauma was not significantly related to posttraumatic stress symptoms, \( B = .21, \beta = .12, t(86) = 1.07, p = .29 \), internalizing symptoms, \( B = .02, \beta = .01, t(82) = .11, p = .91 \), externalizing symptoms, \( B = .10, \beta = .05, t(80) = .41, p = .68 \), ADHD, \( B = .18, \beta = .08, t(73) = .68, p = .50 \), or CD, \( B = .30, \beta = .12, t(67) = .94, p = .35 \). Thus, among adolescents, since there were no significant relationships between the independent variable of chronicity of trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.
**Child: Poly-Exposure and PTS, Internalizing, ADHD, and CD.** Among children, poly-exposure to trauma was not significantly related to posttraumatic stress symptoms, $B = .12, \beta = .20, t(77) = 1.74, p = .09$, internalizing symptoms, $B = .07, \beta = .12, t(78) = 1.05, p = .30$, ADHD, $B = -.01, \beta = -.01, t(58) = -1.10, p = .92$, or CD, $B = .02, \beta = .04, t(52) = .31, p = .76$. Thus, among children, since there were no significant relationships between the independent variable of poly-exposure to trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Child: Poly-Exposure and Externalizing.** Among children, the first regression analyses indicated that the poly-exposure to trauma was significantly positively associated with externalizing symptoms, $B = .17, \beta = .26, t(82) = 2.41, p = .02$. That is, children who reported poly-exposure to trauma reported a higher level of externalizing symptoms. The second regression analysis indicated that, among children, poly-exposure to trauma was not significantly associated with dissociation, $B = .14, \beta = .21, t(76) = 1.84, p = .07$. That is, children who reported poly-exposure to trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of poly-exposure to trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Adolescents: Poly-Exposure and PTS.** Among adolescents, the first regression analyses indicated that the poly-exposure to trauma was significantly positively
associated with posttraumatic stress symptoms, $B = .14, \beta = .25, t(86) = 2.42, p = .02$. That is, adolescents who reported poly-exposure to trauma reported a higher level of posttraumatic stress symptoms. The second regression analysis indicated that, among adolescents, poly-exposure to trauma was not significantly associated with dissociation, $B = .08, \beta = .14, t(86) = 1.28, p = .21$. That is, adolescents who reported poly-exposure to trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of poly-exposure to trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Adolescents: Poly-Exposure and Internalizing, Externalizing, ADHD, and CD.** Among adolescents, poly-exposure to trauma was not significantly related to internalizing symptoms, $B = .10, \beta = .19, t(82) = 1.71, p = .09$, externalizing symptoms, $B = .04, \beta = .06, t(80) = .57, p = .57$, ADHD, $B = .05, \beta = .07, t(73) = .60, p = .55$, or CD, $B = .15, \beta = .20, t(67) = 1.69, p = .10$. Thus, among adolescents, since there were no significant relationships between the independent variable of poly-exposure to trauma and the outcome variables of internalizing symptoms, externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Child: Severity and PTS, Internalizing, ADHD, and CD.** Among children, severity of trauma was not significantly related to posttraumatic stress symptoms, $B = .04, \beta = .15, t(77) = 1.31, p = .19$, internalizing symptoms, $B = .02, \beta = .07, t(78) = .57, p = .57$, ADHD, $B = .00, \beta = .01, t(58) = .06, p = .95$, or CD, $B = .03, \beta = .11, t(52) = .78, p$
Thus, among children, since there were no significant relationships between the independent variable of severity of trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Child: Severity and Externalizing.** Among children, the first regression analyses indicated that the severity of trauma was significantly positively associated with externalizing symptoms, \( B = .08, \beta = .28, t(82) = 2.60, p = .01 \). That is, children who reported higher levels of severity of trauma reported higher levels of externalizing symptoms. The second regression analysis indicated that, among children, severity of trauma approached a significant association with dissociation, \( B = .07, \beta = .22, t(76) = 1.96, p = .05 \). That is, children who reported higher levels of severity of trauma reported higher levels of dissociation. The final regression analysis included both severity of trauma and dissociation in predicting externalizing symptoms. The third condition was not met in that, among children, dissociation was not significantly associated with externalizing symptoms, controlling for severity, \( B = .11, \beta = .11, t(73) = .93, p = .35 \). That is, children who reported higher levels of dissociation did not report higher levels of externalizing symptoms. Thus, since there was no significant relationship between the mediating variable of dissociation and the outcome variable of externalizing symptoms, when controlling for the independent variable of severity, then the third condition of mediation was not met and the final condition was not examined.

**Adolescents: Severity and PTS and CD.** Among adolescents, the first regression analyses indicated that the severity of trauma was significantly positively associated with
posttraumatic stress symptoms, $B = .07, \beta = .29, t(86) = 2.76, p = .01$ and CD, $B = .08, \beta = .24, t(67) = 1.99, p = .05$. That is, adolescents who reported higher severity of trauma reported a higher level of posttraumatic stress symptoms and more symptom criteria for a diagnosis of CD. The second regression analysis indicated that, among adolescents, severity was not significantly associated with dissociation, $B = .03, \beta = .13, t(86) = 1.20, p = .23$. That is, adolescents who reported higher severity of trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of severity of trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Adolescents: Severity and Internalizing, Externalizing, and ADHD.** Among adolescents, severity of trauma was not significantly related to internalizing symptoms, $B = .04, \beta = .18, t(82) = 1.68, p = .10$, externalizing symptoms, $B = .02, \beta = .07, t(80) = .63, p = .53$, or ADHD, $B = .03, \beta = .09, t(73) = .72, p = .48$. Thus, among adolescents, since there were no significant relationships between the independent variable of severity of trauma and the outcome variables of internalizing symptoms, externalizing symptoms, and ADHD, then the first condition of mediation was not met and no further analyses were conducted.

To summarize age, for children, poly-exposure and severity of trauma were significantly related to externalizing symptoms and the other/acute type and chronicity of trauma were significantly related to diagnoses of Conduct Disorder. Further mediational analyses could not be examined as, for children none of the independent variables were
significantly related to the mediating variable of dissociation. One exception is severity of trauma which nearly approached, but did not reach, significance with dissociation, for children. For adolescents, the Maltreatment and Community Violence trauma types were significantly related to posttraumatic stress and internalizing symptoms as well as to dissociation. Mediation analyses indicated that, for adolescents, dissociation significantly mediated the relation between the Maltreatment type and posttraumatic stress, but not for the Maltreatment type and internalizing or for the Community Violence type and posttraumatic stress or internalizing symptoms. For adolescents, poly-exposure and severity were significantly related to posttraumatic stress and severity nearly approached a significant relation to diagnoses of Conduct Disorder. Further mediation analyses could not be examined as, for adolescents, neither of the independent variables of poly-exposure or severity was significantly related to the mediating variable of dissociation.

**Gender**

Gender was investigated as a moderator by dividing the sample into two groups, males and females, and running the mediation model twice- at each level of the moderator. Results are listed below by gender.

**Males: Trauma Type and PTS, ADHD, and CD.** Among males, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to posttraumatic stress symptoms, $B = .34, \beta = .21, t(63) = 1.50, p = .14$, $B = .30, \beta = .19, t(63) = 1.42, p = .16$, and $B = .09, \beta = .05, t(63) = .41, p = .68$, respectively. Among males, the Maltreatment type, Community Violence type, and
Other/Acute trauma types were not significantly related to a diagnosis of ADHD, $B = -.17, \beta = -.07, t(49) = -.46, p = .65, B = .17, \beta = .08, t(49) = .51, p = .61, \text{ and } B = -.14, \beta = -.06, t(49) = -.39, p = .70$, respectively. Among males, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of CD, $B = .12, \beta = .06, t(46) = .35, p = .73, B = .18, \beta = .09, t(46) = .58, p = .57, \text{ and } B = -.59, \beta = -.28, t(46) = -1.85, p = .07$, respectively. Thus, among males, since there were no significant relationships between the independent variables of Maltreatment type, Community Violence type, and Other/Acute trauma type and the outcome variables of posttraumatic stress symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Males: Trauma Type and Internalizing and Externalizing Symptoms.** Among males, the first regression analyses indicated that the Maltreatment trauma type was significantly positively associated with internalizing symptoms, $B = .42, \beta = .28, t(64) = 2.13, p = .04$ and the Other/Acute trauma type was significantly negatively associated with externalizing symptoms, $B = -.57, \beta = -.29, t(65) = -2.34, p = .02$. That is, males who reported exposure to the Maltreatment trauma type reported a higher level of internalizing symptoms and, contrary to expectations, males who reported exposure to the Other/Acute trauma type reported a lower level of externalizing symptoms. The second regression analysis indicated that, among males, the Maltreatment type was not significantly associated with dissociation, $B = .16, \beta = .08, t(63) = .56, p = .58$ and the Other/Acute type was not significantly associated with dissociation, $B = .27, \beta = .13, t(63) = .99, p = .33$. That is, males who reported exposure to the Maltreatment and
Other/Acute trauma types did not report significantly higher levels of dissociation. Thus, since the independent variables of Maltreatment type and Other/Acute trauma type were not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Females: Trauma Type and PTS.** Among females, the first regression analysis indicated that the Maltreatment and the Community Violence trauma types were significantly positively associated with posttraumatic stress, \( B = .70, \beta = .21, t(100) = 2.03, p = .05 \) and \( B = .55, \beta = .29, t(100) = 2.93, p = .00 \), respectively. That is, females who reported exposure to the Maltreatment and the Community Violence trauma types, reported higher levels of posttraumatic symptoms as well. The second regression analysis indicated that the Community Violence type was significantly positively associated with dissociation, \( B = .41, \beta = .24, t(99) = 2.33, p = .02 \). That is, females who reported exposure to the Community Violence trauma type, reported higher levels of dissociation as well. The final regression analysis included both the Community Violence type and dissociation in predicting posttraumatic stress symptoms. The third condition was met in that dissociation was significantly positively associated with posttraumatic stress symptoms, controlling for Community Violence type, \( B = .71, \beta = .64, t(99) = 8.68, p = .00 \). That is, females who reported higher levels of dissociation, reported higher levels of posttraumatic stress symptoms as well. The fourth condition was met in that the relationship between the Community Violence type and posttraumatic stress symptoms was decreased, \( B = .26, \beta = .14, t(99) = 1.79, p = .08 \), when dissociation was controlled. However, the Sobel method revealed that the indirect path (the reduction
in the direct path) was not statistically significant, $z = 1.42, p = .16$. Thus, this result indicates that, among females, dissociation did not mediate the relationship between the Community Violence type and posttraumatic stress symptoms (see Figure 3).

**Figure 3 Significant Mediation Analyses for Gender - Females (n = 104)**

![Diagram showing mediation analysis](image)

*Note*: Values on the paths are path coefficients (standardized betas). Path coefficients inside parentheses are zero-order betas. Path coefficients outside parentheses are partial regression coefficients from equations that include the mediating variable with a direct effect on the criterion. *$p < .05$, **$p < .01$, ***$p < .001$.

Sobel test of mediation results, in the form of z-scores are located in the upper right corner of each figure.

**Females: Trauma Type and Internalizing, Externalizing, ADHD, and CD.**

Among females, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to internalizing symptoms, $B = .21$, $\beta = .07$, $t(96) = .64$, $p = .53$, $B = .24$, $\beta = .15$, $t(96) = 1.35$, $p = .18$, and $B = -.22$, $\beta = -.12$, $t(96) = -1.12$, $p = .27$, respectively. Among females, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to externalizing symptoms, $B = -.13$, $\beta = -.03$, $t(96) = -.32$, $p = .75$, $B = .25$, $\beta = .12$, $t(96) = 1.12$, $p = .26$, and $B = .17$, $\beta = .08$, $t(96) = .70$, $p = .49$, respectively. Among females, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of ADHD, $B = .13$, $\beta = .04$, $t(82) = .31$, $p = .76$, $B = -.04$, $\beta = -.02$, $t(82) = -.17$, $p = .87$, and $B = .38$, $\beta = .18$, $t(82) = 1.58$, $p = .12$, respectively. Among
females, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of CD, $B = .34, \beta = .09, t(73) = .69, p = .49, B = .17, \beta = .09, t(73) = .69, p = .49,$ and $B = -.03, \beta = -.02, t(73) = -.12, p = .90,$ respectively. Thus, among females, since there were no significant relationships between the independent trauma type variables of Maltreatment type, Community Violence type, and Other/Acute trauma type and the outcome variables of internalizing, externalizing, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Males: Chronicity and PTS, Internalizing, Externalizing, ADHD, and CD.**

Among males, chronicity of trauma was not significantly related to posttraumatic stress symptoms, $B = .15, \beta = .09, t(65) = .75, p = .45,$ internalizing symptoms, $B = .12, \beta = .09, t(66) = .70, p = .49,$ externalizing symptoms, $B = .30, \beta = .16, t(67) = 1.29, p = .20,$ ADHD, $B = .11, \beta = .05, t(51) = .34, p = .74,$ or CD, $B = .39, \beta = .19, t(46) = 1.34, p = .19.$ Thus, among males, since there were no significant relationships between the independent variable of chronicity of trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Females: Chronicity and PTS, Internalizing, Externalizing, ADHD, and CD.**

Among females, the first regression analysis indicated that chronicity of trauma was not significantly related to posttraumatic stress symptoms, $B = .05, \beta = .02, t(100) = .23, p = .82,$ internalizing symptoms, $B = -.08, \beta = -.05, t(96) = -.47, p = .64,$ externalizing symptoms, $B = .20, \beta = .09, t(97) = .91, p = .37,$ ADHD, $B = .31, \beta = .15, t(82) = 1.38, p$
=.17, or CD, $B = .40, \beta = .18, t(73) = 1.52, p = .13$. Thus, among females, since there were no significant relationships between the independent variable of chronicity of trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Males: Poly-Exposure and PTS and Internalizing.** Among males, the first regression analyses indicated that the poly-exposure to trauma approached significant positively association with posttraumatic stress symptoms, $B = .13, \beta = .25, t(63) = 2.02, p = .05$ and internalizing symptoms, $B = .11, \beta = .24, t(64) = 1.97, p = .05$. That is, males who reported poly-exposure to trauma reported a higher level of posttraumatic stress symptoms and internalizing symptoms. The second regression analysis indicated that, among males, the poly-exposure was not significantly associated with dissociation, $B = .11, \beta = .17, t(63) = 1.38, p = .17$. That is, males who reported poly-exposure to trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of poly-exposure to trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Males: Poly-Exposure and Externalizing, ADHD, and CD.** Among males, poly-exposure to trauma was not significantly related to externalizing symptoms, $B = .05, \beta = .09, t(65) = .74, p = .46$, ADHD, $B = .01, \beta = .02, t(49) = .13, p = .90$, or CD, $B = .05, \beta = .07, t(46) = .49, p = .63$. Thus, among males, since there were no significant relationships between the independent variable of poly-exposure to trauma and the
outcome variables of externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Females: Poly-Exposure and PTS and Externalizing.** Among females, the first regression analyses indicated that the poly-exposure to trauma was significantly positively associated with posttraumatic stress symptoms, \( B = .13, \beta = .21, t(100) = 2.02, p = .05 \) and externalizing symptoms, \( B = .18, \beta = .26, t(97) = 2.48, p = .02 \). That is, females who reported poly-exposure to trauma reported a higher level of posttraumatic stress symptoms and externalizing symptoms. The second regression analysis indicated that, among females, the poly-exposure was not significantly associated with dissociation, \( B = .10, \beta = .18, t(99) = 1.73, p = .09 \). That is, females who reported poly-exposure to trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of poly-exposure to trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Females: Poly-Exposure and Internalizing, ADHD, and CD.** Among females, poly-exposure to trauma was not significantly related to internalizing symptoms, \( B = .05, \beta = .08, t(96) = .77, p = .44 \), ADHD, \( B = .05, \beta = .08, t(82) = .66, p = .51 \), or CD, \( B = .12, \beta = .18, t(73) = 1.55, p = .13 \). Thus, among females, since there were no significant relationships between the independent variable of poly-exposure to trauma and the outcome variables of internalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.
Males: Severity and PTS, Internalizing, Externalizing, ADHD, and CD.

Among males, severity of trauma was not significantly related to posttraumatic stress symptoms, $B = .05, \beta = .22$, $t(63) = 1.79, p = .08$, internalizing symptoms, $B = .04, \beta = .18$, $t(64) = 1.43, p = .16$, externalizing symptoms, $B = .03, \beta = .12$, $t(65) = .94, p = .35$, ADHD, $B = -.01, \beta = -.03$, $t(49) = -.18, p = .86$, or CD, $B = .04, \beta = .15$, $t(46) = 1.02, p = .31$. Thus, among males, since there were no significant relationships between the independent variable of severity of trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

Females: Severity and PTS and Externalizing.

Among females, the first regression analyses indicated that the severity of trauma was significantly positively associated with posttraumatic stress symptoms, $B = .06, \beta = .21$, $t(100) = 2.11, p = .04$ and externalizing symptoms, $B = .08, \beta = .25$, $t(97) = 2.45, p = .02$. That is, females who reported higher severity of trauma reported a higher level of posttraumatic stress symptoms and externalizing symptoms. The second regression analysis indicated that, among females, severity was not significantly associated with dissociation, $B = .05, \beta = .20$, $t(99) = 1.93, p = .06$. That is, females who reported higher severity of trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of severity of trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.
Females: Severity and Internalizing, ADHD, and CD. Among females, severity of trauma was not significantly related to internalizing symptoms, $B = .02$, $\beta = .08$, $t(96) = .72$, $p = .48$, ADHD, $B = .04$, $\beta = .14$, $t(82) = 1.23$, $p = .22$, or CD, $B = .06$, $\beta = .21$, $t(73) = 1.77$, $p = .08$. Thus, among females, since there were no significant relationships between the independent variable of severity of trauma and the outcome variables of internalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

To summarize gender, for males, the Maltreatment type was significantly related internalizing symptoms, the Other/acute type was significantly related to externalizing symptoms, and poly-exposure to trauma approached significant relations to posttraumatic stress and internalizing symptoms. Further mediational analyses could not be examined as, for males none of the independent variables were significantly related to the mediating variable of dissociation. For females, the Community Violence trauma type was significantly related to posttraumatic stress symptoms as well as to dissociation. The Maltreatment type approached significant relation to posttraumatic stress symptoms, but not dissociation. Mediational analyses indicated that, for females, dissociation did not significantly mediate the relation between the Community Violence type and posttraumatic stress. For females, poly-exposure and severity were significantly related to posttraumatic stress and externalizing (poly-exposure approached significance with posttraumatic stress). Further mediational analyses could not be examined as, for females, neither of the independent variables of poly-exposure or severity was significantly related to the mediating variable of dissociation.
Overall for both age and gender, the third hypothesis was not confirmed, as age and gender did not moderate the mediated relations between aspects of trauma, dissociation, and outcomes, with one exception. Among children, analyses did not reveal significant mediated relations between any independent variables and any outcomes; however, among adolescents, one mediated relation was significant. Among adolescents, dissociation significantly mediated the relation between the Maltreatment trauma type and posttraumatic stress symptoms. Among males and females, analyses did not reveal significant mediated relations between any independent variables and any outcomes; however, one mediated relation approached significance. Among females, dissociation approached significant mediation of the relation between the Community Violence trauma type and posttraumatic stress symptoms; however, the Sobel test was nonsignificant.

*Adverse Experiences: Initial Method*

To test whether adverse experiences might moderate the mediated relation between different aspects of trauma and outcomes, four moderated mediation conditions must be met: (1) significant effects of the independent variables of trauma on the dependent variables of various outcomes; (2) significant interactions between the independent variables of trauma and the moderator, adverse experiences, in predicting the mediator, dissociation, and significant interactions between the mediator, dissociation, and the moderator, adverse experiences, in predicting the dependent variable, various outcomes; (3) significant effect of the mediator, dissociation on the dependent variable of various outcomes; and (4) different conditional indirect effect of the independent variable
of trauma on the dependent variable of various outcomes, via the mediator, dissociation, across low and high levels of the moderator, adverse experiences. The last condition establishes whether the strength of the mediation via the mediator, dissociation, differs across the two levels of the moderator (Preacher, Rucker, & Hayes, 2007). Moderated mediation is demonstrated when the conditional indirect effect of trauma on outcomes, via dissociation, differs in strength across low and high levels of adverse experiences.

In order to satisfy Condition 1 for moderated mediation, the reader is referred to the results for the second hypothesis, *dissociation will mediate the relationship between various aspects of trauma (type, chronicity, poly-exposure, and severity) and various outcomes (posttraumatic stress, internalizing, and externalizing symptoms)*, which include the results for step 1 of the mediation criteria (significant effect of the independent variable on the dependent variable) as the first regression necessary to establish mediation. To meet criteria for Condition 2, two pathways were tested, one (a) to test a moderator effect on the relation between the independent variable and the mediator and a second (b) to test the moderator effect on the relation between the mediator and the dependent variable. To test pathway (a), products were formed between the independent variables, trauma, and the moderator, adverse experiences, to represent the interaction terms, which were then included in the regression predicting to the mediator dissociation. To test pathway (b), products were formed between the mediator, dissociation, and the moderator, adverse experiences, which were then included in the regression predicting to the dependent variable, various outcomes. All variables were
centered prior to creation of the interaction terms in order to reduce multicollinearity between predictors and interaction terms and to avoid the evaluation of one main effect at an extreme value of the other main effect. In testing pathway (a), the interaction terms for (1) Maltreatment trauma type, Community Violence trauma type, and Other/acute trauma type and adverse experiences, (2) chronicity and adverse experiences, (3) poly-exposure and adverse experiences, and (4) severity and adverse experiences were not significant in predicting dissociation. In testing pathway (b), the interaction term for dissociation and adverse experiences was not significant in predicting (1) posttraumatic stress, (2) internalizing, (3) externalizing, (4) conduct disorder, or (5) ADHD. Taken together, these results indicate that Condition 2 was not satisfied for either pathway (a) or (b). Thus, no further investigation of moderated mediation relationships was conducted via Preacher et al.’s (2007) statistical significance test.

*Adverse Experiences: Tests of Simple Mediation*

The initial method, used above, investigated whether mediation is moderated by testing whether the individual paths of the mediated model were significantly moderated by Adverse Experiences through the use of interaction terms. This method did not reveal significant results when testing the interaction terms, thus an alternative, exploratory method was utilized to test moderated mediation in a different way. This model is considered to be exploratory since the interaction terms were not found to be significant in the initial method. Muller, Judd, and Yzerbyt (2005) suggested calculating simple effects to test simple mediation at various levels of a moderator. In order to test this, instead of centering the moderator by subtracting its mean from each value, the
moderator is divided according to whatever values are of interest. In this case, the moderator, Adverse Experiences, was divided into two dichotomous categories so that simple mediation could be tested at each level of the moderator. An alternative model tested if dissociation acted as a stronger mediator for one group (low Adverse Experiences) than for another (high Adverse Experiences) by testing the mediation separately for each of these groups.

**High Adverse Experiences: Trauma Type and PTS.** When adverse experiences were high, the first regression analysis indicated that the Community Violence trauma type was significantly positively associated with posttraumatic stress, $B = .63, \beta = .38, t(78) = 3.13, p = .00$. That is, when adverse experiences were high, participants who reported exposure to the Community Violence trauma type reported higher levels of posttraumatic symptoms. The second regression analysis indicated that the Community Violence type was significantly positively associated with dissociation, $B = .59, \beta = .35, t(77) = 2.94, p = .00$. That is, when adverse experiences were high, participants who reported exposure to the Community Violence trauma type reported higher levels of dissociation. The final regression analysis included both the Community Violence type and dissociation in predicting posttraumatic stress symptoms. The third condition was met in that dissociation was significantly positively associated with posttraumatic stress symptoms, controlling for Community Violence type, $B = .69, \beta = .69, t(77) = 7.78, p = .00$. That is, when adverse experiences were high, participants who reported higher levels of dissociation, reported higher levels of posttraumatic stress symptoms as well. The fourth condition was met in that the relationship between the Community Violence
type and posttraumatic stress symptoms was decreased, $B = .23, \beta = .14, t(77) = 1.44, p = .15$, when dissociation was controlled. The Sobel method revealed that the indirect path (the reduction in the direct path) was statistically significant, $z = 2.75, p = .01$.

Thus, when adverse experiences were high, dissociation mediated the relationship between the Community Violence type and posttraumatic stress symptoms (see Figure 4).

**Low Adverse Experiences: Trauma Type and PTS.** When adverse experiences were low, the first regression analysis indicated that the Maltreatment trauma type was significantly positively associated with posttraumatic stress, $B = .60, \beta = .28, t(83) = 2.21, p = .03$. That is, when adverse experiences were low, participants who reported exposure to the Maltreatment trauma type reported higher levels of posttraumatic symptoms. The second regression analysis indicated that, when adverse experiences were low, the Maltreatment type was not significantly associated with dissociation, $B = .41, \beta = .24, t(99) = 2.33, p = .02$. That is, when adverse experiences were low, participants who reported exposure to the Maltreatment trauma type did not report significantly higher levels of dissociation. Thus, since the independent variable of Maltreatment type was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.
Figure 4 Significant Mediated Paths for Adverse Experiences - High (n = 78)

Note: Values on the paths are path coefficients (standardized betas). Path coefficients inside parentheses are zero-order betas. Path coefficients outside parentheses are partial regression coefficients from equations that include the mediating variable with a direct effect on the criterion. *p < .05, **p < .01, ***p < .001. =p = .05. Sobel test of mediation results, in the form of z-scores are located in the upper right corner of each figure.
High Adverse Experiences: Trauma Type and Internalizing. When adverse experiences were high, the first regression analysis indicated that the Community Violence trauma type was significantly positively associated with internalizing symptoms, $B = .39, \beta = .25, t(79) = 1.99, p = .05$. That is, when adverse experiences were high, participants who reported exposure to the Community Violence trauma type reported higher levels of internalizing symptoms. The second regression analysis indicated that the Community Violence type was significantly positively associated with dissociation, $B = .59, \beta = .35, t(77) = 2.94, p = .00$. That is, when adverse experiences were high, participants who reported exposure to the Community Violence trauma type reported higher levels of dissociation. The third condition was met in that dissociation was significantly positively associated with internalizing symptoms, controlling for Community Violence type, $B = .55, \beta = .59, t(76) = 5.66, p = .00$. That is, when adverse experiences were high, participants who reported higher levels of dissociation, reported higher levels of internalizing symptoms as well. The fourth condition was met in that the relationship between the Community Violence type and internalizing symptoms was decreased, $B = .02, \beta = .02, t(76) = .14, p = .89$, when dissociation was controlled. However, the Sobel method revealed that the indirect path (the reduction in the direct path) was not statistically significant, $z = .14, p = .89$. Thus, when adverse experiences were high, dissociation did not mediate the relationship between the Community Violence type and internalizing symptoms (see Figure 4).
High Adverse Experiences: Trauma Type and Externalizing, ADHD, and CD. When adverse experiences were high, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to externalizing symptoms, $B = -.47$, $\beta = -.17$, $t(75) = -1.29$, $p = .20$, $B = -.10$, $\beta = -.05$, $t(75) = -.37$, $p = .71$, and $B = -.28$, $\beta = -.14$, $t(75) = -1.08$, $p = .28$, respectively. When adverse experiences were high, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of ADHD, $B = -.30$, $\beta = -.09$, $t(64) = -.64$, $p = .53$, $B = .25$, $\beta = .13$, $t(64) = .92$, $p = .36$, and $B = .07$, $\beta = .03$, $t(64) = .24$, $p = .81$, respectively. When adverse experiences were high, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of CD, $B = -.04$, $\beta = -.01$, $t(61) = -.07$, $p = .95$, $B = .01$, $\beta = .01$, $t(61) = .04$, $p = .97$, and $B = -.23$, $\beta = -.09$, $t(61) = -.68$, $p = .50$, respectively. Thus, when adverse experiences were high, since there were no significant relationships between the independent trauma type variables of Maltreatment type, Community Violence type, and Other/Acute trauma type and the outcome variables of externalizing, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

Low Adverse Experiences: Trauma Type and Internalizing, Externalizing, ADHD, and CD. When adverse experiences were low, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to internalizing symptoms, $B = .41$, $\beta = .23$, $t(80) = 1.72$, $p = .09$, $B = .18$, $\beta = .12$, $t(80) = 1.02$, $p = .31$, and $B = -.04$, $\beta = -.03$, $t(80) = -.22$, $p = .83$, respectively. When adverse
experiences were low, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to externalizing symptoms, $B = .19$, $\beta = .08$, $t(85) = .62$, $p = .54$, $B = .43$, $\beta = .22$, $t(85) = 1.87$, $p = .07$, and $B = -.01$, $\beta = -.00$, $t(85) = -.03$, $p = .98$, respectively. When adverse experiences were low, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of ADHD, $B = .08$, $\beta = .03$, $t(67) = .22$, $p = .83$, $B = -.05$, $\beta = -.02$, $t(67) = -.18$, $p = .86$, and $B = .26$, $\beta = .12$, $t(67) = .86$, $p = .39$, respectively. When adverse experiences were low, the Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to a diagnosis of CD, $B = .16$, $\beta = .09$, $t(58) = .61$, $p = .55$, $B = .17$, $\beta = .11$, $t(58) = .87$, $p = .39$, and $B = -.28$, $\beta = -.17$, $t(58) = -1.26$, $p = .22$, respectively. Thus, when adverse experiences were low, since there were no significant relationships between the independent trauma type variables of Maltreatment type, Community Violence type, and Other/Acute trauma type and the outcome variables of internalizing, externalizing, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

High Adverse Experiences: Chronicity and PTS, Internalizing, Externalizing, ADHD, and CD. When adverse experiences were high, chronicity of trauma was not significantly related to posttraumatic stress symptoms, $B = -.01$, $\beta = -.00$, $t(78) = -.03$, $p = .97$, internalizing symptoms, $B = -.30$, $\beta = -.17$, $t(79) = -1.44$, $p = .15$, externalizing symptoms, $B = .30$, $\beta = .14$, $t(75) = 1.18$, $p = .24$, ADHD, $B = -.03$, $\beta = -.01$, $t(64) = -.10$, $p = .92$ or CD, $B = .30$, $\beta = .11$, $t(61) = .79$, $p = .43$. Thus, when adverse experiences were high, since there were no significant relationships between the independent variable
of chronicity of trauma and the outcome variables of posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, ADHD and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Low Adverse Experiences: Chronicity and Internalizing.** When adverse experiences were low, the first regression analyses indicated that the chronicity of trauma was significantly positively associated with internalizing symptoms, \( B = .37, \beta = .24, t(80) = 2.18, p = .03 \). That is, when adverse experiences were low, participants who reported exposure to a chronic trauma reported higher levels of internalizing symptoms. The second regression analysis indicated that, when adverse experiences were low, the chronicity of trauma was not significantly associated with dissociation, \( B = .24, \beta = .13, t(83) = 1.12, p = .27 \). That is, when adverse experiences were low, participants who reported exposure to a chronic trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of chronicity of trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Low Adverse Experiences: Chronicity and PTS, Externalizing, ADHD, and CD.** When adverse experiences were low, chronicity of trauma was not significantly related to posttraumatic stress symptoms, \( B = .34, \beta = .19, t(83) = 1.71, p = .09 \), externalizing symptoms, \( B = .00, \beta = .00, t(85) = .02, p = .99 \), ADHD, \( B = .34, \beta = .16, t(67) = 1.34, p = .19 \) or CD, \( B = .22, \beta = .15, t(58) = 1.16, p = .25 \). Thus, when adverse experiences were low, since there were no significant relationships between the independent variable of chronicity of trauma and the outcome variables of posttraumatic
stress symptoms, externalizing symptoms, ADHD and CD, then the first condition of
mediation was not met and no further analyses were conducted.

**High Adverse Experiences: Poly-Exposure and PTS.** When adverse experiences were high, the first regression analysis indicated that poly-exposure to trauma was significantly positively associated with posttraumatic stress, $B = .18$, $\beta = .33$, $t(78) = 2.96$, $p = .00$. That is, when adverse experiences were high, participants who reported higher levels of poly-exposure to trauma reported higher levels of posttraumatic symptoms. The second regression analysis indicated that poly-exposure to trauma was significantly positively associated with dissociation, $B = .14$, $\beta = .27$, $t(77) = 2.36$, $p = .02$. That is, when adverse experiences were high, participants who reported higher levels of poly-exposure to trauma reported higher levels of dissociation. The final regression analysis included both poly-exposure to trauma and dissociation in predicting posttraumatic stress symptoms. The third condition was met in that dissociation was significantly positively associated with posttraumatic stress symptoms, controlling for poly-exposure, $B = .69$, $\beta = .68$, $t(77) = 7.99$, $p = .00$. That is, when adverse experiences were high, participants who reported higher levels of dissociation reported higher levels of posttraumatic stress symptoms. The fourth condition was met in that the relationship between poly-exposure to trauma and posttraumatic stress symptoms was decreased, $B = .08$, $\beta = .15$, $t(77) = 1.74$, $p = .09$, when dissociation was controlled. The Sobel method revealed that the indirect path (the reduction in the direct path) was statistically significant, $z = 2.25$, $p = .02$. Thus, when adverse experiences were high, dissociation
mediated the relationship between poly-exposure to trauma and posttraumatic stress symptoms (see Figure 4).

High Adverse Experiences: Poly-Exposure and Internalizing, Externalizing, ADHD, and CD. When adverse experiences were high, poly-exposure to trauma was not significantly related to internalizing symptoms, $B = .09$, $\beta = .18$, $t(79) = 1.51$, $p = .13$, externalizing symptoms, $B = -.01$, $\beta = -.02$, $t(75) = -.19$, $p = .85$, ADHD, $B = .00$, $\beta = .00$, $t(64) = .01$, $p = .99$, or CD, $B = .01$, $\beta = .01$, $t(61) = .09$, $p = .93$. Thus, when adverse experiences were high, since there were no significant relationships between the independent variable of poly-exposure to trauma and the outcome variables of internalizing symptoms, externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

Low Adverse Experiences: Poly-Exposure and PTS and Externalizing. When adverse experiences were low, the first regression analyses indicated that the poly-exposure to trauma was significantly positively associated with posttraumatic stress symptoms, $B = .17$, $\beta = .23$, $t(83) = 2.08$, $p = .04$ and externalizing symptoms, $B = .22$, $\beta = .29$, $t(85) = 2.57$, $p = .01$. That is, when adverse experiences were low, participants who reported poly-exposure to trauma reported a higher level of posttraumatic stress symptoms and externalizing symptoms. The second regression analysis indicated that, when adverse experiences were low, poly-exposure was not significantly associated with dissociation, $B = .15$, $\beta = .19$, $t(83) = 1.72$, $p = .09$. That is, when adverse experiences were low, participants who reported poly-exposure to trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of poly-exposure to
trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Low Adverse Experiences: Poly-Exposure and Internalizing, ADHD, and CD.** When adverse experiences were low, poly-exposure to trauma was not significantly related to internalizing symptoms, $B = .14$, $\beta = .23$, $t(80) = 2.03$, $p = .05$, ADHD, $B = .13$, $\beta = .15$, $t(67) = 1.26$, $p = .21$, or CD, $B = .11$, $\beta = .19$, $t(58) = 1.51$, $p = .14$. Thus, when adverse experiences were low, since there were no significant relationships between the independent variable of poly-exposure to trauma and the outcome variables of internalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**High Adverse Experiences: Severity and PTS.** When adverse experiences were high, the first regression analysis indicated that severity of trauma was significantly positively associated with posttraumatic stress, $B = .07$, $\beta = .30$, $t(78) = 2.64$, $p = .01$. That is, when adverse experiences were high, participants who reported higher levels of severity of trauma reported higher levels of posttraumatic symptoms. The second regression analysis indicated that severity of trauma was significantly positively associated with dissociation, $B = .06$, $\beta = .26$, $t(77) = 2.32$, $p = .02$. That is, when adverse experiences were high, participants who reported higher levels of severity of trauma reported higher levels of dissociation. The final regression analysis included both severity of trauma and dissociation in predicting posttraumatic stress symptoms. The third condition was met in that dissociation was significantly positively associated with posttraumatic stress symptoms, controlling for severity, $B = .70$, $\beta = .69$, $t(77) = 8.04$, $p =$
That is, when adverse experiences were high, participants who reported higher levels of dissociation reported higher levels of posttraumatic stress symptoms. The fourth condition was met in that the relationship between severity of trauma and posttraumatic stress symptoms was decreased, \( B = .03, \beta = .12, t(77) = 1.36, p = .18 \), when dissociation was controlled. The Sobel method revealed that the indirect path (the reduction in the direct path) was statistically significant, \( z = 2.25, p = .02 \). Thus, when adverse experiences were high, dissociation mediated the relationship between severity of trauma and posttraumatic stress symptoms (see Figure 4).

**High Adverse Experiences: Severity and Internalizing, Externalizing, ADHD, and CD.** When adverse experiences were high, severity of trauma was not significantly related to internalizing symptoms, \( B = .02, \beta = .09, t(79) = .74, p = .46 \), externalizing symptoms, \( B = .01, \beta = .03, t(75) = .25, p = .80 \), ADHD, \( B = -.00, \beta = -.01, t(64) = -.06, p = .95 \), or CD, \( B = .02, \beta = .05, t(61) = .35, p = .73 \). Thus, when adverse experiences were high, since there were no significant relationships between the independent variable of severity of trauma and the outcome variables of internalizing symptoms, externalizing symptoms, ADHD, and CD, then the first condition of mediation was not met and no further analyses were conducted.

**Low Adverse Experiences: Severity and PTS, Internalizing, Externalizing and CD.** When adverse experiences were low, the first regression analyses indicated that the severity of trauma was significantly positively associated with posttraumatic stress symptoms, \( B = .10, \beta = .29, t(83) = 2.67, p = .01 \), internalizing symptoms, \( B = .09, \beta = .31, t(80) = 2.83, p = .01 \), externalizing symptoms, \( B = .09, \beta = .24, t(85) = 2.13, p = .04 \).
and CD, B = .07, β = .24, t(58) = 1.97, p = .05. That is, when adverse experiences were low, participants who reported higher severity of trauma reported a higher level of posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, and more symptom criteria for a diagnosis of CD. The second regression analysis indicated that, when adverse experiences were low, severity was not significantly associated with dissociation, B = .08, β = .21, t(83) = 1.91, p = .06. That is, when adverse experiences were low, participants who reported higher severity of trauma did not report significantly higher levels of dissociation. Thus, since the independent variable of severity of trauma was not significantly related to the mediating variable of dissociation, then the second condition of mediation was not met and no further analyses were conducted.

**Low Adverse Experiences: Severity and ADHD.** When adverse experiences were low, severity of trauma was not significantly related to ADHD, B = .08, β = .21, t(67) = 1.70, p = .09. Thus, when adverse experiences were low, since there were no significant relationships between the independent variable of severity of trauma and the outcome variable of ADHD, then the first condition of mediation was not met and no further analyses were conducted.

To summarize adverse experiences, for high adverse experiences, the Community Violence type was significantly related to posttraumatic stress and internalizing symptoms, as well as to dissociation. Mediatonal analyses indicated that, when adverse experiences were high, dissociation significantly mediated the relation between the Community Violence type and posttraumatic stress, but not for internalizing. Also, when adverse experiences were high, poly-exposure and severity were significantly related to
posttraumatic stress as well as to dissociation. Mediational analyses indicated that, when adverse experiences were high, dissociation significantly mediated the relation between poly-exposure and severity and posttraumatic stress. When adverse experiences were low, the Maltreatment trauma type was significantly related to posttraumatic stress symptoms, chronicity was significantly related to internalizing symptoms, poly-exposure was significantly related to posttraumatic stress and externalizing, and severity was significantly related to posttraumatic stress, internalizing, and externalizing. Severity also approached a significant relation with diagnoses of Conduct Disorder. Further mediational analyses could not be examined as, when adverse experiences were low, none of the independent variables were significantly related to the mediating variable of dissociation.
CHAPTER FOUR
DISCUSSION

This study examined dissociation as a mediator of the relation between various aspects of trauma exposure and symptoms of posttraumatic stress and various other outcomes in a clinic-referred sample of children and adolescents living in urban poverty. Results confirmed that dissociation was a consistently significant mediator, across different types of trauma, chronicity, multiple exposures, and severity and in predicting posttraumatic stress, internalizing, and externalizing symptoms. Regression analyses indicated that (1) Various aspects of trauma exposure (Maltreatment Type, Community Violence Type, Poly-Exposure, and Severity) were significantly positively related to posttraumatic stress, (2) Various aspects of trauma (Maltreatment Type, Community Violence Type, Chronicity, Poly-Exposure, and Severity) were significantly positively related to internalizing and externalizing symptoms, (3) Dissociation mediated the relation between three aspects of trauma (Community Violence Type, Poly-Exposure, and Severity) and posttraumatic stress, and (4) Dissociation mediated the relation between two aspects of trauma (Community Violence Type and Poly-Exposure) and internalizing symptoms. Taken together, these findings suggest that trauma exposure as a construct consists of meaningful variants that produce different results depending on how it is investigated. Similarly, posttraumatic stress as well as internalizing and

154
externalizing symptoms performed as significant outcome variables depending on several of the different aspects of trauma.

This study also investigated how the mediational findings for the whole sample, may vary according to three different contextual factors, Adverse Experiences, Age, and Gender. Exploratory analyses revealed that (1) in the context of high levels of Adverse Experiences, dissociation mediated the relation between three aspects of trauma (Community Violence Type, Poly-Exposure, and Severity) and posttraumatic stress, (2) among adolescents, dissociation mediated the relation between Maltreatment Type and posttraumatic stress, and (3) gender did not moderate the mediation of dissociation. These findings suggest that important contextual and developmental factors influence the significance of the mediational models, with high levels of adverse experiences and adolescence rendering mediation more likely.

Exposure to trauma continues to be a pervasive and detrimental experience in the lives of children and adolescents in impoverished, urban communities. The current study was one of very few to investigate dissociation as a core determinant in the relation between trauma exposure and negative outcomes in a clinic-referred sample. Additionally, this study undertook the issue of how to conceptualize trauma exposure as a research variable to fully capture the nuances of such a complex and multi-faceted construct. The inclusion of internalizing and externalizing symptoms along with posttraumatic stress symptoms as outcome variables demonstrated the relevance of investigating a more inclusive spectrum of outcomes of trauma exposure. Lastly, the examination of contextual factors as moderators of the mediated model added to the
richness of the findings in that it provided greater understanding of when or, under what conditions, dissociation acts as a significant mediator.

*Dissociation as a Mediator*

The second hypothesis was confirmed in that dissociation significantly mediated the relations of the Community Violence trauma type and posttraumatic stress and internalizing, poly-exposure and posttraumatic stress and internalizing and severity and posttraumatic stress. However, dissociation was not a significant mediator for the relations among the Maltreatment or Other/acute trauma type, chronicity and any of the outcomes or any of the aspects of trauma and externalizing outcomes. These findings are discussed in turn.

*The Effect of Moderators on Dissociation as a Mediator*

The third hypothesis was confirmed, in part, in that, adverse experiences moderated the meditated relations between trauma and outcomes. Contrary to the third hypothesis, age did not significantly moderate most of the mediated models, with one exception, and gender did not significantly moderate any of the mediated models.

*Age*

For children, analyses did not reveal significant mediated relations between the any independent variables and any outcomes; however, for adolescents one mediated relation was significant. For adolescents, dissociation significantly mediated the relation between the Maltreatment trauma type and posttraumatic stress symptoms.
Gender

For males and females, analyses did not reveal significant mediated relations between any independent variables and any outcomes. For females, dissociation approached significant mediation of the relation between the Community Violence trauma type and posttraumatic stress symptoms; however, the Sobel test was nonsignificant.

Adverse Experiences

In the context of low Adverse Experiences, dissociation approached significant mediation in the relations between severity and posttraumatic stress and internalizing symptoms. In the context of high Adverse Experiences, dissociation significantly mediated the relations between community violence type, poly-exposure, and severity and posttraumatic stress. These moderated mediation findings are discussed in turn, interspersed within the mediation results and organized according to the following sections, Trauma Type, Chronicity, Poly-Exposure, and Severity.

Trauma Type

While it was expected that all three trauma types (Maltreatment, Community Violence, and Other/Acute) would be related to posttraumatic stress, this was not the case in this study. Interestingly, only the Community Violence type was significantly correlated to any of the outcome variables. However, regression analyses revealed significant relations between the Community Violence type as well as the Maltreatment type and posttraumatic stress symptoms and between the Community Violence type and internalizing symptoms (Maltreatment approached significance with internalizing). Past
research has supported a robust link between exposure to community violence and posttraumatic stress and to a lesser extent, internalizing (Fowler et al., 2009). Similarly, maltreatment has also demonstrated a strong link to posttraumatic stress (Ford, 2005; Lemos-Miller & Kearney, 2006; Scott, 2007) and a less robust link to internalizing (Hebert et al., 2006; Kim & Cicchetti, 2003; Macfie, Cicchetti, & Toth, 2001).

Maltreatment and community violence are typically studied separately and each has a large literature on the outcomes of these trauma types independently, but rarely are both types included in the same investigation of outcomes as in the current study. In this sample of youth living in urban poverty and presenting to a trauma center, both the Community Violence and Maltreatment types of trauma showed similar patterns in regard to posttraumatic stress and internalizing symptoms. This suggests that community violence and maltreatment may be less divergent than previously thought and in fact may produce similar outcomes. The developmentally based principle of equifinality indicates that in any child’s dynamic environment a variety of pathways may lead to the same outcome (Cicchetti & Rogosch, 1996). In the current study, community violence and maltreatment are two unique types of trauma that each result in the same pattern of outcomes. Consistent with the equifinality and multifinality principles of developmental psychopathology, this may be due to the shared environment of the children and adolescents in this sample. Research demonstrating this similarity in pattern of findings then may be more ecologically valid for application to clinical settings in which children and adolescents present who have been exposed to both community violence and maltreatment.
The Other/Acute trauma type did not demonstrate significant relations with any of the outcomes. It may be that the Other/Acute trauma type was composed of traumas that were too distinct from one another to show similar relations with outcome variables. It is typical in the trauma research literature to not include an investigation of other traumas (Copeland et al., 2007). The more common approach is to focus on one type of trauma and to exclude others from analysis. In fact, most assessment measures of trauma are designed to specifically assess one type of trauma as opposed to a broad range of trauma types (Strand et al., 2005). Perhaps if each of the traumas that composed the Other/Acute category had been investigated separately, more significant findings would have emerged. It could also be possible that traumas that are acute in nature are not significantly related to the outcomes variables in this sample. It may be that community violence and maltreatment are particularly likely to be related to posttraumatic stress and internalizing symptoms for children and adolescents living in urban poverty.

While it was also expected that all three trauma types would be related to dissociation, only the Community Violence type, was significantly positively associated with dissociation. For this sample, community violence was particularly related to dissociation. This finding is supported by past research, which has found a significant relation between exposure to community violence and dissociation (DePrince, Weinzierl, & Combs, 2008; Flannery, Singer & Wester, 2001). Maltreatment has traditionally shown a significant relationship with dissociation in other studies (Ford et al., 2006; Putnam, 1997; Wolfe et al., 2001) however in this study maltreatment was not related to dissociation. The link between community violence and dissociation, as opposed to the
more typical link between maltreatment and dissociation, was an interesting finding that may have emerged as a relationship that is especially likely in a sample from a population of children and adolescents living in urban poverty and presenting to a trauma center. For these children, the presence of community violence is often profound and pervasive creating a context in which dissociation is both a negative consequence and circumstantially adaptive coping mechanism, providing mental escape from an inescapable environment. Fowler and colleagues (2009) conducted a large meta-analysis of the effects of exposure to community violence and reported that community violence is a continual trauma, with rates at constant levels over spans of years according to longitudinal studies, that results in a host of psychological symptoms, most notably posttraumatic stress. Dissociation is often indirectly assessed as either a scale or as questions that are included as part of the total score in measures most frequently used to assess posttraumatic stress across studies of exposure to community violence (Strand et al., 2005). Dissociation as an outcome may be less established in the literature because a majority of studies focus on posttraumatic stress, as opposed to analysis of the specific symptoms that comprise posttraumatic stress measures. In fact, this study provided evidence for dissociation as both an independent outcome of exposure to violence, and further as a mediator leading to posttraumatic stress. Additionally, some of the outcomes traditionally associated with chronic violence exposure, such as poor academic achievement, aggression, substance abuse, and delinquency, may be the result of dissociative symptoms as manifested in the school setting, emotional dysregulation, or poor coping (Bell & Jenkins, 1991).
Dissociation mediated the relationship of the Community Violence type to posttraumatic stress symptoms and internalizing symptoms. These results were consistent with hypotheses and with the basic tenet of this study, that dissociation is a core process in the established relationship between trauma and posttraumatic stress and internalizing symptoms. This finding was unique in that this was true for the Community Violence type in particular, when examined separately from other types of trauma and from other aspects of trauma. In the last two decades, an extensive body of research has examined the detrimental effects of exposure to community violence (Fowler et al., 2009; Wilson & Rosenthal, 2003). As discussed earlier, the relationship between exposure to community violence and posttraumatic stress has been the most widely studied and widely found correlate of exposure to community violence with less of a focus on other internalizing outcomes (Fowler et al., 2009). As the relationship between exposure and psychological distress has been established, the current study added to the literature in this area by providing evidence for the underlying mechanism of this relationship. Children and adolescents who are exposed to community violence may have a dissociative response that allows them to mentally escape from the negative experience of such violence exposure. While this response may be circumstantially adaptive in the short term, results of the current study suggest that the dissociative experience enabled ensuing posttraumatic stress and internalizing symptoms. According to the 2004 International Society for the Study of Dissociation Guidelines for the Evaluation and Treatment of Dissociative Symptoms in Children and Adolescents, “dissociation may be seen as a developmental disruption in the integration of adaptive memory, sense of
identity, and the self-regulation of emotion” (p. 123). Dissociation, as defined in this way, disrupts the normal process of integration that would otherwise occur and explains the subsequent presence of psychological distress in the form of posttraumatic stress and internalizing symptoms. In fact, empirical studies have found a link between peritraumatic dissociation and subsequent development of PTSD, suggesting, along with the findings of the current study, that dissociation acts as a mechanism by which posttraumatic stress develops (Ehlers, Mayou, & Bryant, 2003; Kaplow et al., 2005; Saxe et al., 2005). While the current study does not provide causal evidence for this speculation, findings do suggest that dissociation is not only an outcome, but also a mediator in the relationship between exposure and outcomes. In the least, the findings of the current study suggest that a greater emphasis should be placed on the investigation of dissociation beyond its traditional roots of linkage to maltreatment to include its relation with community violence exposure. Additionally, dissociation was a significant mediator between not only community violence exposure and posttraumatic stress, but also between community violence exposure and internalizing. The latter finding highlights the extension of the role of dissociation beyond posttraumatic stress to include other internalizing symptoms. Prior research has begun to explore the link between dissociation and other internalizing outcomes (Flannery et al., 2001; Kisiel & Lyons, 2001; Macfie, Cicchetti, & Toth, 2001), but this remains an area in need of further research. It may be that exposure to community violence leads to dissociation and then the resultant outcome, whether posttraumatic stress, anxiety, or depression is dependent
on other causal mechanisms which each warrant their own investigation and are beyond the scope of the current study.

The Maltreatment type, Community Violence type, and Other/Acute trauma types were not significantly related to externalizing symptoms, ADHD, or CD. When examining type of trauma, in this study, results did not suggest that differences in trauma type were significant predictors of externalizing symptoms or disorders. This may be due to the nature of how the externalizing construct was investigated. Due to low reliability analyses, these separate measures were not combined into one composite, which may have reduced the power necessary to reveal significant relations. Alternatively, it could be that the type of trauma is not relevant for these outcomes. Past research has shown an effect of community violence exposure on externalizing problems (Fowler et al., 2009), although this finding was not replicated in the current study. The empirical investigation of trauma is limited in respect to the exploration of other outcomes, yet some studies have reported significant relationships between trauma and ADHD (Ford et al., 1999; Husain et al., 2008; Kaplow et al., 2008) as well as Conduct Disorder (Flannery, Singer, van Dulmen, Kretschmar, & Belliston, 2007; Hamrin, Jonker, & Scahill, 2004). While these results were not replicated in the current study, other aspects of trauma did show significant relations with the externalizing constructs, suggesting that these aspects of trauma may be more applicable to externalizing outcomes.

Interestingly, this pattern of significant relations between community violence and maltreatment and posttraumatic stress and internalizing symptoms emerged for the whole sample and for adolescents, but not for children. For adolescents, dissociation mediated
the relationship between the Maltreatment type and posttraumatic stress symptoms, but it did not mediate the relationship between the Community Violence type and posttraumatic stress symptoms. The reasons for these findings may be twofold, first, empirical reviews of the literature highlight adolescent populations as having higher levels of exposure to trauma and, second, from a developmental perspective, adolescents are cognitively and emotionally different from younger children in their ability to cope with traumatic stress (Wilson & Rosenthal, 2003). Prior research focusing on adolescent populations has investigated links between maltreatment and posttraumatic stress (Lemos-Miller & Kearney, 2006), maltreatment, adjustment, and dating violence (Wolfe et al., 2001) and interpersonal trauma, posttraumatic stress and dissociation (Nilsson, Gustafsson, & Svedin, 2010). The current study contributed to this body of research in support of an emphasis on adolescence as a unique developmental period that carries with it unique findings that may not apply to children of younger ages.

**Chronicity**

Chronicity of trauma was not significantly related to posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, or ADHD. In this study exposure to a chronic trauma did not increase the likelihood of any of the outcome measures, with the exception of Conduct Disorder. The lack of significant results for chronicity could be due to the fact that this aspect of trauma was investigated independently from other aspects of trauma and was assessed as a simple dichotomous variable of either present or absent (i.e., Is this a chronic event? yes or no). Perhaps, as assessed in this study, children and adolescents did not indicate chronic exposure to
trauma via this single question asked by clinicians. The frequency construct may have been better captured via a continuous scale of frequency, which asks how many times this one kind of trauma has occurred and then categorizes children according to number of occurrences of one type. In fact, prior studies of frequency of trauma and its correlates have utilized more comprehensive measures of frequency that consist of additive counts of re-occurrences of a single trauma type (Finkelhor et al., 2007). Other reviews of trauma exposure have reported significant problems with definitions of revictimization which obscure results (Arata, 2002). For example, Finkelhor and colleagues (2007) differentiated between single victims, defined as only one victimization of only one type, chronic victims, defined as multiple episodes of one type of victimization, and poly-victims, defined as four or more different types of victimization in a given year. The definition of chronic victims is most similar to the operational definition of chronicity in the current study; however, it does differ in that Finkelhor’s chronic victims could have included someone who was exposed to the same trauma two times or more, whereas chronicity in the current study was determined by clinician interview and may have resulted in different categorizations of chronic or not chronic. Given this difference, as this type of detailed trauma assessment is rarely reported in the literature, findings from Finkelhor and colleagues (2007) are comparable to the current study and show a similar pattern. Chronic victims had significantly higher anxiety and depressive symptoms when compared to non-victimized children. However, across all types of trauma, poly-victims had significantly higher anxiety and depressive symptoms than chronic victims, with the exception of maltreatment (Finkelhor et al.,
2007). These findings may help explain the lack of significant relations for the chronicity variable in the current study. The large, nationally representative sample in Finkelhor’s study was assessed by telephone interview, whereas in the current study the sample consisted of children and adolescents referred to a child trauma center for treatment. It could be assumed that the current sample was comprised of a select group of children who had been exposed to trauma and were experiencing distress to such a degree as to necessitate referral. This sample does not allow for comparison to non-victimized children. It may be that within this group of children, poly-exposure to trauma was more likely to overpower significant findings related to chronicity, as once exposed, seemingly the experience of chronic trauma was less detrimental than the experience of multiple exposures to different types of trauma.

Chronicity of trauma did show a significant positively association with a diagnosis of Conduct Disorder. Children and adolescents in this sample who were exposed to a chronic trauma were more likely to meet symptom criteria for a diagnosis of Conduct Disorder. This is consistent with previous research suggesting that abused and neglected children are often given diagnoses beyond PTSD, including Conduct Disorder (Cook et al., 2005; NCTSN, 2003). In a study of traumatic stress response in pediatric gunshot victims, Hamrin and colleagues (2004) report significantly higher rates of acute stress disorder symptoms and Conduct Disorder, among other psychiatric comorbidities, in gunshot victims as compared to a control group of chronically medically ill hospitalized children. While this study did not assess frequency of trauma exposure, the higher rates of Conduct Disorder in this sample were consistent with the findings in the
current study. Perhaps if a measure of frequency or chronicity of trauma exposure had been assessed, the rates of Conduct Disorder would have been related to the chronicity of the trauma exposure, as in the current study. Interestingly, authors note that the measure used to assess acute stress disorder symptoms did not include all possible dissociative symptoms required for a diagnosis of Acute Stress Disorder (Hamrin, 2004). In the current study, chronicity of trauma was not significantly associated with dissociation. While it is not possible to make generalizations based on the limited literature and present findings, it may be that for the current sample, chronic trauma exposure was not related to dissociation because continual exposure to the same trauma over and over again may have evoked a different response. As opposed to community violence, which is considered chronic but in the current study may vary in regard to types of exposures, chronicity indicates chronic exposure to one type of trauma. Children and adolescents in this sample may have responded to this aspect of trauma exposure with desensitization, they may have been influenced by the exposure, modeled their own behavior after the exposure, or any combination of these responses. Such approaches to coping with chronic trauma are consistent with social cognition theories, which suggest that violent behavior is modeled as an appropriate response, and physiologically based theories, which assert that chronic violence exposure is associated with lessened arousal during aggressive behaviors (Fowler et al., 2009). This may lead to behavioral acting out, by engaging in behaviors that would meet criteria for Conduct Disorder, thus explaining the present findings.
Interestingly, the relation between exposure to a chronic trauma and higher rates of Conduct Disorder emerged for the whole sample and for children, but not for adolescents. Prior studies of preschool aged children, although younger than the child cohort in this study, have found higher rates of externalizing symptoms following trauma exposure (Levendosky et al., 2002; Macfie et al., 2001; Scheeringa et al., 2003). Other research has found that later onset of trauma exposure is associated with more behavior problems (Fowler et al., 2009; Kaplow & Widom, 2007). The literature is not consistent in this regard and studies of preschool aged children cannot be generalized to the current study; however, this finding may reflect a developmental influence in regard to response to trauma across younger aged children to adolescents.

**Poly-Exposure**

Analyses revealed significant relations of poly-exposure to trauma to posttraumatic stress symptoms and internalizing. As an example of poly-exposure, one 12-year-old girl in the current study had been exposed to four different trauma types, including sexual victimization, witnessing sexual victimization, direct victim of extrafamilial violent crime, and witnessing community violence. Poly-exposure to trauma, as a simple additive count of 19 different trauma types, was significantly related to clinically significant posttraumatic stress and internalizing symptoms. Prior research on accumulation of trauma is consistent with these findings (Copeland et al., 2007; Finkelhor et al., 2005; Finkelhor et al., 2007; Frans, 2005; Scott, 2007; Thabet, Tawahina, El Sarraj, & Vostanis, 2008). As discussed earlier in the Chronicity section, Finkelhor and colleagues (2007) poly-victims, which were categorized into low (4-6
victimizations) and high (7 or more victimizations) are comparable to the poly-exposure construct as defined in the current study. Poly-victims predicted higher rates of trauma symptoms than both single victims and chronic victims, regardless of type of trauma. Similarly, Copeland and colleagues (2007) conducted a study of a large community sample of children and adolescents which showed a lifetime history of exposure to multiple different traumatic events strongly predicted higher rates of posttraumatic stress symptoms. Additionally, rates of impairments (including disruption of relationships and school, physical, and emotional problems) also increased with the number of different types of trauma exposures. Scott (2007) assessed clinical and nonclinical participants for exposure to four different types of trauma and found that clinical participants experienced significantly more multiple traumas (79%) and had higher rates of PTSD (13%) compared to the nonclinical group. Taken together with the current study, these findings highlight the importance of assessing poly-exposure, or number of different types of traumatic events experienced. Poly-exposure may account for a large proportion of the relationship between trauma and posttraumatic stress and internalizing symptoms and may be largely overlooked in studies that do not assess for this aspect of trauma exposure. An early study by Sameroff and colleagues (1987) assessed 10 environmental risk factors such as minority group status and maternal mental health and found that no single risk factor independently predicted success or failure in early intellectual achievement, but in fact, the cumulative effects from multiple risk factors predicted more variance in IQ than any single risk factor alone. Whereas the larger trauma literatures have focused on type of trauma or chronicity as risk factors for a
range of psychological symptoms, significant findings in these studies may actually be attributed to the number of different kinds of trauma exposure.

Poly-exposure to trauma was significantly related to dissociation. The higher the number of different traumas children and adolescents were exposed to, the higher the level of dissociative symptoms. This finding highlights the need to investigate the different nuances of trauma exposure. For example, whereas chronicity, which was defined as exposure to the same trauma again and again, was related to Conduct Disorder, but not to dissociation, poly-exposure or number of different traumas, was significantly related to dissociation and not Conduct Disorder. It may be that, for the children and adolescents in this population, being exposed to the same trauma again and again, or chronic exposure, resulted in some type of environmentally adaptive response, as discussed earlier, of desensitization or modeling, which was consistent with the relationship with Conduct Disorder, in that they may be modeling the violent or aggressive behaviors that they have chronically witnessed or chronically been victimized by. Chronic trauma exposure, while certainly damaging, perhaps has some element of predictability or familiarity that, granted can lead to other deleterious outcomes, may not lead to dissociation. Whereas for poly-exposure, youth were confronted with increasing number of different traumas, not repeat occurrences of the same trauma, which may mean that each exposure to a different trauma required a different kind of response, a dissociative response, as perhaps a means of coping in the absence of predictability or familiarity. In a study of autobiographical memory of adolescent inpatients, total number of traumatic experiences was significantly associated with lack of memory specificity,
while depression, anxiety, worry, hopelessness, and subjective stress were not (Decker, Hermans, Raes, & Eelen, 2003). Authors of this study drew from Williams’ (1996) developmental theory to explain that children who experience early trauma adopt a generic retrieval style for autobiographical memories in order to regulate affect. This strategy uses recall of less specific memories to reduce risk of confrontation with painful memories (de Decker et al., 2003). While autobiographical memory is not a proxy for dissociation, research is scant on poly-exposure and dissociation in children and adolescents. The significance between poly-exposure and the dissociative-related concept of inability to retrieve specific memories warrants comparison to the noted significance between poly-exposure and dissociation in the current study. The accumulation of multiple different types of traumatic exposures presents an exceptionally difficult situation for children and adolescents in that as they try to adapt to their environment over time, they are continually presented with new traumatic events. This recurring novel exposure may reduce their ability to learn from or adapt to these traumatic events and thus exhaust their abilities to cope. Consistent with Perry and colleagues (1995) evolutionary based biological theory, a surrender or dissociative response is more fitting for children and adolescents for such unpredictable and inescapable circumstances. This difference has important implications for the assessment and treatment of trauma in both clinical and research settings and while the exact outcomes of poly-exposure are not clear, certainly further investigation of this construct is warranted.
Dissociation mediated the relationship between poly-exposure to trauma and posttraumatic stress symptoms and poly-exposure to trauma and internalizing symptoms. As with the Community Violence type, these results were consistent with hypotheses and with the basic tenet of this study, that dissociation is a core process in the established relationship between trauma and posttraumatic stress and internalizing symptoms. Interestingly, poly-exposure or poly-victimization has been receiving an increasing amount of attention in the literature in regard to its link with posttraumatic stress and internalizing outcomes (Copeland et al., 2007; de Decker et al., 2003; Finkelhor et al., 2005; Finkelhor et al., 2007; Frans, 2005; Scott, 2007; Thabet et al., 2008). However, no research thus far has focused on the mechanism through which poly-exposure leads to posttraumatic stress and internalizing. This dearth in the literature may explain why dissociation has not been considered, prior to the current study, as a potential mediator of this relationship. As the poly-exposure to dissociation link was described earlier, it may be that multiple exposures to trauma of different types exhausts available coping and leads to dissociation. The link between dissociation and posttraumatic stress is well established (Ehlers, Mayou, & Bryant, 2003; Kaplow et al., 2005; Saxe et al., 2005). The link between dissociation and internalizing is less well established, but burgeoning (Hebert et al., 2006; Macfie et al., 2001). Again the inclusion of both posttraumatic stress and internalizing emphasized the importance of considering other outcomes that are related to posttraumatic stress, but extend beyond to other clinical disorders, such as anxiety and depression, resulting from trauma exposure and particularly poly-exposure. It may be that poly-exposure in particular is an under studied element of trauma exposure.
that was particularly likely to engage this process of dissociation and resulting posttraumatic stress and internalizing symptoms.

Regression analyses also revealed significant relations between poly-exposure to trauma and externalizing symptoms, but not with dissociation and externalizing symptoms, thus not indicating a mediating relationship. The significant relation between poly-exposure and externalizing suggested that there might have been another mediating variable worthy of study in this relationship, but that it may not have been dissociation. The relation between poly-exposure and externalizing may have been indicative of a different trauma response pathway. In some instances, children and adolescents who are exposed to a number of different traumas may respond with dissociative symptoms which then lead to posttraumatic stress or internalizing symptoms, as was found in the current study, however, for others, poly-exposure may lead to more subclinical acting out type behaviors, as would be captured on the CBCL externalizing scale, but not severe enough to warrant a full diagnosis of ADHD or Conduct Disorder. Similar to the argument for the first pathway, youth exposed to multiple different traumas may have coping abilities overwhelmed and may act out with externalizing type behaviors. Poly-exposure to trauma was not significantly related to ADHD or Conduct Disorder, suggesting that the externalizing symptoms exhibited by youth in this sample are not enough to warrant clinical diagnoses. Additionally, poly-exposure was significantly related to externalizing symptoms for children, posttraumatic stress symptoms for adolescents, posttraumatic stress symptoms and internalizing symptoms for males, and posttraumatic stress symptoms and externalizing symptoms for females. The relations to posttraumatic stress
and internalizing have been supported by past research and discussed above, but the relation to externalizing for children and females is less common. This could reflect a developmental difference in response to trauma exposure, as chronicity was also related to Conduct Disorder for children, suggesting that at younger ages children may tend to behaviorally act out in response to multiple trauma or chronic trauma. Traditionally, research has shown that girls have higher rates of posttraumatic stress symptoms in response to trauma (Fitzpatrick & Boldizar, 1993; Foster et al., 2004; Jenkins & Bell, 1994; Singer, Anglin, Song, & Lunghofer, 1995; Springer & Padgett, 2000). That females in the current study also had higher rates of externalizing symptoms in response to poly-exposure may reflect the hypervigilance that often occurs with the posttraumatic stress response. Further research is needed to interpret these findings for age and gender.

**Severity**

Regression analyses revealed significant relations of severity of trauma to posttraumatic stress symptoms, externalizing symptoms, and Conduct Disorder. Additionally, severity was significantly related to externalizing symptoms and approached significance with dissociation for children, posttraumatic stress symptoms and Conduct Disorder for adolescents, and posttraumatic stress symptoms and externalizing symptoms for females. Severity of trauma was not significantly related to internalizing symptoms or ADHD. In the current study, severity of trauma was composed of a combination of poly-exposure and chronicity, which essentially means that severity was another way to investigate the poly-exposure and chronicity constructs, only together in combination, as opposed to separately. A high severity score then,
indicated that a child or adolescent had been exposed to multiple different types of trauma and at least one of those different trauma exposures was chronic in duration. Thus, the results, and research drawn from the literature to support those results, were similar to that for each construct measured separately. As the severity of trauma variable was created as a combination of two other variables specific to this dataset, there is no literature on severity as defined in the current study. As poly-exposure was significantly related to posttraumatic stress and externalizing and chronicity was significantly related to Conduct Disorder, taken together, severity was related to all of the same outcomes. The only exception was that poly-exposure was related to internalizing and severity was not significantly related to internalizing. It may be that, similar to the pathways model discussed earlier, youth who were poly-exposed adapted or coped in a way that was more likely to result in posttraumatic and internalizing symptoms/disorders whereas externalizing symptoms presented at a clinical level, as assessed on the CBCL, but not enough to have warranted diagnoses of Conduct Disorder or ADHD. Exposure to chronic trauma, on the other hand, may have involved a different pathway characterized by the repeated nature of chronic trauma and may have been more directly related to a diagnosis of Conduct Disorder. The findings of the severity construct then, could theoretically have been a combination of these two pathways as well in that when youth were chronically and poly-exposed they coped or adapted in a multifaceted way that incorporated both the coping or adaptive style utilized by children exposed to multiple traumas and the style resulting from chronic exposure, resulting in both types of outcomes. Thabet and colleagues (2008), in their study of children and parents exposed
to war trauma, found a significant relation between trauma exposure and PTSD which was related to the total number and severity of traumatic exposures, without any single event predicting PTSD symptoms. This finding, when considered with the results of the current study, would suggest that the relation between trauma and outcomes may be better understood when factors such as number of exposures and severity of exposures are included in delineating among trauma exposure, above and beyond pure classification by type.

Severity of trauma was significantly positively associated with dissociation. This finding suggests that children who were both poly-exposed and chronically exposed to trauma were more likely to have higher dissociation scores. While chronic exposure to trauma may have been within the coping capabilities of a child or adolescent in this sample, it appeared that when chronicity was combined with multiple exposures to different traumas, dissociative symptoms emerged. Again, in light of severity as a combination of poly-exposure and chronicity, the significant relationship with dissociation suggests that although chronicity was not significantly related to dissociation, the significant relationship with poly-exposure and dissociation may have been strong enough to subsist when combined with chronicity.

Dissociation mediated the relationship between severity of trauma and posttraumatic stress symptoms. Dissociation was not significantly related to externalizing symptoms or Conduct Disorder, when controlling for severity. The lack of significant relationship between dissociation and externalizing symptoms or Conduct Disorder may have been a reflection of the difference in pathways. It may be that for
children and adolescents in this sample, dissociation was more likely to lead to posttraumatic stress or internalizing outcomes rather than to externalizing symptoms or Conduct Disorder. This could also be indicative of the fact that, while a relationship may exist between severity of trauma exposure and externalizing symptoms and disorders, it may be mediated by a pathway other than dissociation, which did not significantly relate to any of the externalizing outcomes in this study.

Adverse Experiences

The adverse experiences variable consisted of the following 10 items: History of Impaired Caregiver (e.g., depression, mental illness, drug or alcohol abuse), Exposure to prostitution or other developmentally inappropriate behavior or material, Exposure to other criminal behavior in the home (e.g., drug use), Neglect (physical, medical, or educational), History of foster placement, Substitute care (no DCFS involvement but live with other than biological parent), Homelessness, Incarcerated significant other, Death of significant other (other than primary caregiver), and Unresolved trauma history in current caregiver. Each of these variables has been investigated separately in various studies. A review of all of these would be beyond the scope of the current project. The combination of these adverse experiences is exploratory in the current study and findings are discussed broadly as such.

In the context of high adverse experiences, the Community Violence trauma type was significantly related to posttraumatic stress and internalizing symptoms, as well as dissociation; poly-exposure was significantly related to posttraumatic stress and dissociation; severity of trauma was significantly related to posttraumatic stress, as well
as dissociation. Interestingly, almost all of these significant relations between independent variables and outcomes were precursors to significant mediation, with the exception of internalizing symptoms. In fact, in the context of adverse experiences, dissociation significantly mediated the relationship between the Community Violence type and posttraumatic stress symptoms, between poly-exposure to trauma and posttraumatic stress symptoms, and between severity of trauma and posttraumatic stress symptoms. These findings suggest that in a context of a high level of adverse experiences the basic tenet of this study was found in that dissociation was a core process in the established relationship between trauma and posttraumatic stress symptoms. Interestingly, community violence, poly-exposure, and severity were the aspects of trauma in which this process occurred. These particular aspects of trauma share common features, including the pervasiveness of community violence, the multiplicative effects of poly-exposure, and the combined effects of chronicity and multiple trauma exposure that composed the severity variable. It could be said that these aspects of trauma are indicative of more frequent experiences of trauma that are unavoidable and inescapable and without availability of coping options. In these situations, the dissociative response may be the most likely to be utilized and thus set in motion a process that results in higher levels of posttraumatic stress symptoms.

In the context of low adverse experiences, the Maltreatment trauma type was significantly related to posttraumatic stress; chronicity of trauma was significantly related to internalizing symptoms; poly-exposure to trauma was significantly related to posttraumatic stress symptoms and externalizing symptoms; severity of trauma was
significantly to posttraumatic stress symptoms, internalizing symptoms, externalizing symptoms, and Conduct Disorder. Several of the relations between the independent variables of trauma exposure and the outcome variables were significant however none of these were significantly mediated by dissociation. The main difference between low and high levels of adversity was that dissociation was a significant mediator in the context of high adversity, but not in the context of low adversity. Under conditions of low adverse experiences, children and adolescents may have not arrived at these outcomes via the dissociative pathway. There may have been other mediating variables not assessed in the current study that accounted for these relationships. Alternatively, the presence of these relationships may have been indicative of the level of trauma exposure of children and adolescents in the study sample. At higher levels of adverse experiences the relations were significantly mediated, suggesting that at this lower level of adverse experiences, the mediation may have not been strong enough to produce significant results.

Strengths and Limitations

The current study contained a number of noteworthy strengths and limitations that may have influenced findings and are important to consider when expounding the impact this study has on the current trauma literature for children and adolescents. First, both a strength and limitation, the data set was derived from a clinic-referred sample of children and adolescents living in urban poverty. This presents challenges in that it was impossible to have complete data from all of the participants, or the questions were assessed in such a way as to reduce power for analyses. No comparable non-clinical group was available to evaluate for significant findings. This is also a strength in that the
findings of this study are ecologically valid and easily generalizable to the immediate population presenting to the trauma center. A significant strength of the current study was the thorough exploration of the concept of trauma. This gave a fuller understanding of the relations between trauma and outcomes that may have been missed in a less comprehensive investigation.

The proposed hypotheses in this study combined with the ecologically valid data from a trauma center necessitated a significant amount of preliminary analyses devoted to the construction of variables. Several factors had to be considered to determine which variables could be combined into composites for use in the regression analyses. The study of each aspect of trauma separately for the trauma type variables and the chronicity variable may have reduced variability and occluded significant results as these variables were coded as present or absent.

Additional limitations include, first, the small sample size, which made it difficult to detect interaction effects. Second, the measures included both caregiver and child/adolescent report which strengthened the power of analyses, yet both informants were not available for all measures. Third, the low reliability of the externalizing construct when externalizing symptoms, ADHD, and Conduct Disorder were combined into one composite necessitated that they each be investigated separately, which lowered the power for each of the three to demonstrate significance and made comparisons with the internalizing construct, which was a combination of internalizing symptoms, Anxiety and Depression, less directly equivalent. Fourth, the number of tests conducted may have increased the possibility of Type I error. The total number of regressions conducted was
194, including pre-mediation criteria, and 59 of the 194 were significant, suggesting that a more conservative significance level, such as $p < .01$ could have been used as opposed to $p < .05$. Lastly, the lack of an experimental design prevented definitive statement of causality to be made.

*Future Directions and Clinical Implications*

Future research needs to consider the complexity of the trauma experience and the myriad ways in which it can affect children and adolescents and thus contribute to the negative outcomes that have been widely researched. Specifically, research needs a renewed focus on the role of dissociation as a mediator of these relations and as a component of the trauma experience. Research that examines this construct has implications for interventions used to treat traumatized children and adolescents. Additionally, research should be sensitive to the contextual factors of children living in urban poverty, specifically the impact of adverse experiences.

The findings in this study, combined with past research suggest that the number of different traumatic experiences a child or adolescent is exposed to is a simple way to predict risk for developing psychological symptoms. This can be beneficial in both clinical and research settings in that the number of different traumatic experiences a child or adolescent is exposed to is a simple way to predict risk for developing posttraumatic stress or internalizing symptoms. A simple checklist or questionnaire as a screener could be used to identify children who have been poly-exposed and thus may be at greater risk. Additionally, in research studies, it may be relevant for researchers to incorporate a count of trauma exposures, as this may be influencing findings instead of the apparent research
question. For example, if a study is focusing on community violence and finds significant relations to posttraumatic stress and internalizing, but does not assess number of traumas, or poly-exposure, it may be missing important differences between kids who have experienced fewer traumas compared to those who have been exposed to a greater number.
REFERENCES


Ozer, E. J., & Weinstein, R. S. (2004). Urban adolescents’ exposure to community violence: The role of support, school safety, and social constraints in a school-


VITA

Krista Kohl was born in Chicago Heights and raised in Kankakee, Illinois. Before attending Loyola University Chicago, she attended the University of Iowa, Iowa City, where she earned a Bachelor of Arts in Psychology in 2001. Currently, Krista is a Postdoctoral Fellow in Pediatric Psychology at the Children’s Hospital of Los Angeles. She lives in Irvine, California.
DISSERTATION APPROVAL SHEET

The Dissertation submitted by Krista L. Kohl has been read and approved by the following committee:

Maryse Richards, Ph.D., Director  
Professor of Clinical Psychology  
Loyola University Chicago

Renee Dominguez, Ph.D.  
Assistant Program Director  
Chicago Child Trauma Center  
LaRabida Children’s Hospital

Scott Leon, Ph.D.  
Professor of Clinical Psychology  
Loyola University Chicago

James Garbarino, Ph.D.  
Professor of Psychology  
Loyola University Chicago

The final copies have been examined by the director of the Dissertation Committee and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the Dissertation is now given final approval by the committee with reference to content and form.

The Dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Date ___________________________ Director’s Signature ___________________________